ORDER NO. AD9002037C8

Service Manual

Cassette Deck

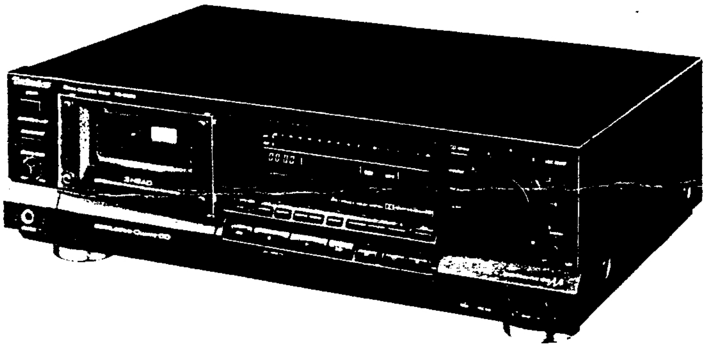
RS-B965

Dolby NR-Equipped
Stereo Cassette Deck

DOLBY B·C NR HX PRO *

Color

(K)... Black Type



Area

Country Code	Area	Color
(E)	Continental Europe.	(K)
(EB)	Great Britain.	
(EG)	F.R. Germany and Italy.	
(GC)	Asia, Latin America, Near East, and Africa.	
(GN)	Oceania.	

* HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY", the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

RS-B755 MECHANISM SERIES (AR350)

■ SPECIFICATIONS

■ CASSETTE DECK SECTION

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Heads	
Record	Permalloy (Combination)
Playback	Permalloy (Combination)
Erasure	Double-gap ferrite
Motors	
Capstan drive	Quartz DD motor
Reel table drive	DC motor
Cassette holder open/close	DC motor
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC erase
Tape speed	4.8 cm/sec.
Frequency response	
NORMAL	20 Hz~19 kHz
	20 Hz~18 kHz (DIN)
CrO_2	20 Hz~20 kHz
	20 Hz~19 kHz (DIN)
METAL	20 Hz~21 kHz
	20 Hz~20 kHz (DIN)
S/N (signal level=max recording level, CrO_2 type tape)	
Dolby C NR on	74 dB (CCIR)
Dolby B NR on	66 dB (CCIR)
Dolby NR off	57 dB (A weighted)
Wow and flutter	0.05% (WRMS)
	±0.14% (DIN)
Fast forward and rewind times	Approx. 90 seconds with C-60 cassette tape
Input sensitivity and impedance	
LINE	60 mV/47 kΩ
Output voltage and impedance	
LINE	400 mV/800Ω
HEADPHONES	125 mV/8Ω
	(8Ω~600Ω)

■ GENERAL

Power consumption	21 W
Power supply	
For Continental Europe, F.R. Germany and Italy	AC 50 Hz/60 Hz, 220 V
For Great Britain and Oceania	AC 50 Hz/60 Hz, 240 V
For others	AC 50 Hz/60 Hz, 110 V/127 V/220 V/240 V
Dimensions (W × H × D)	430 × 135 × 290 mm
Weight	6.4 kg

Note:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

Technics

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

■ CONTENTS

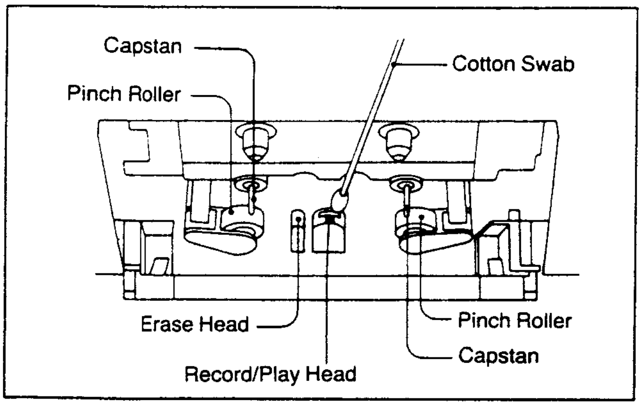
※ This technical information is located on pp 45-51 of the RS-B555 Service Manual (Order No. AD8907231C5). Therefore, refer to that Service Manual.

■ MAINTENANCE

Head care

To assure good sound quality for recording and playback, be sure to clean the heads after approximately every 10 hours of use.

1) Press the open/close button.
2) Press the power "standby ⏻/on" switch to turn the unit off.
3) Clean the heads, pinch roller and the capstan shaft with a cotton swab (or with a soft, lint-free cloth) slightly moistened with alcohol.
   Do not use any solution other than alcohol for head cleaning.



Head demagnetization

In order to maintain good sound quality during recording and playback, it is recommended that the heads should be demagnetized if distortion or poor sound quality persist after cleaning the heads.

If the heads become magnetized, they could create noise in recordings, loss of high-frequency response, or erasure of valuable recordings. Several types of head demagnetizers are available and may be purchased at local electronics supply stores. Follow the instructions that are supplied with the device.

- Do not bring any type of metal objects or tools such as magnetic screwdrivers in contact with the head assembly.

Maintenance of external surfaces

To clean this unit, use a soft, dry cloth.

For very dirty surfaces, dip a soft cloth in a weak soap-and-water solution and wring well. After cleaning, wipe with a soft, dry cloth.

Never use alcohol, paint thinner, benzine, or a chemically treated cloth to clean this unit.

Such chemicals may damage the unit's finish.

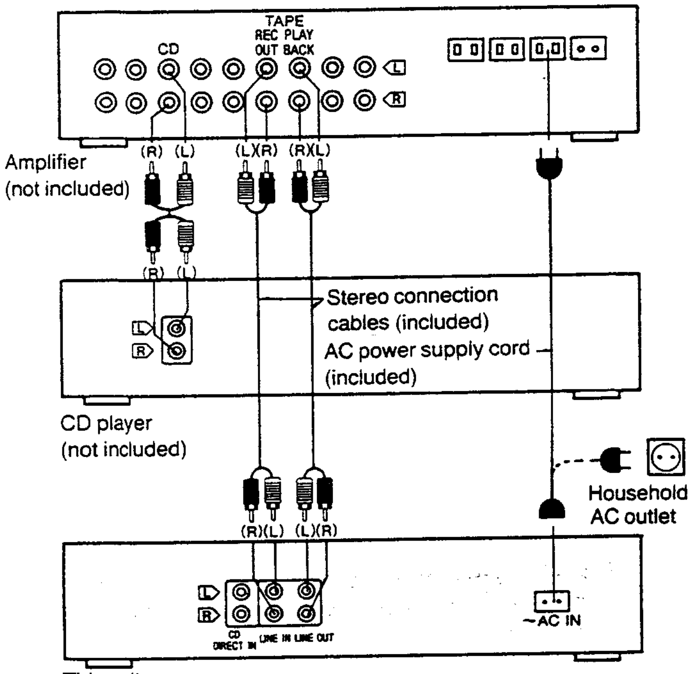
■ ACCESSORIES

- Stereo connection cable 2
  (SJP2249-3)
- AC plug adaptor 1
  (SJP9215) For (GC) area only.
- AC power supply cord 1
  [RJA0004 (GC)
  SFDAC05E03 (E, EG)
  SJA173-1 (GN)
  SJA193-1 (EB)]

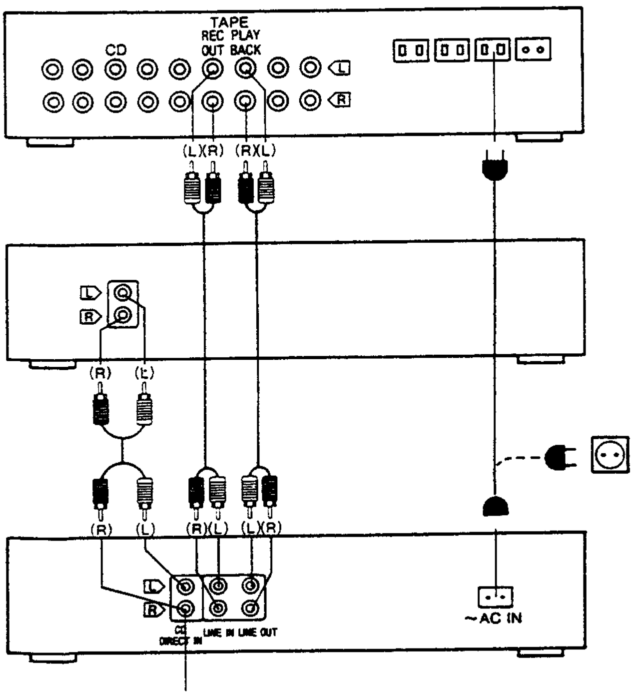
■ CONNECTIONS

Follow the figures below to connect the unit with other units. Make sure that the power has been turned off to the units while they are being connected.

1 Regular connections

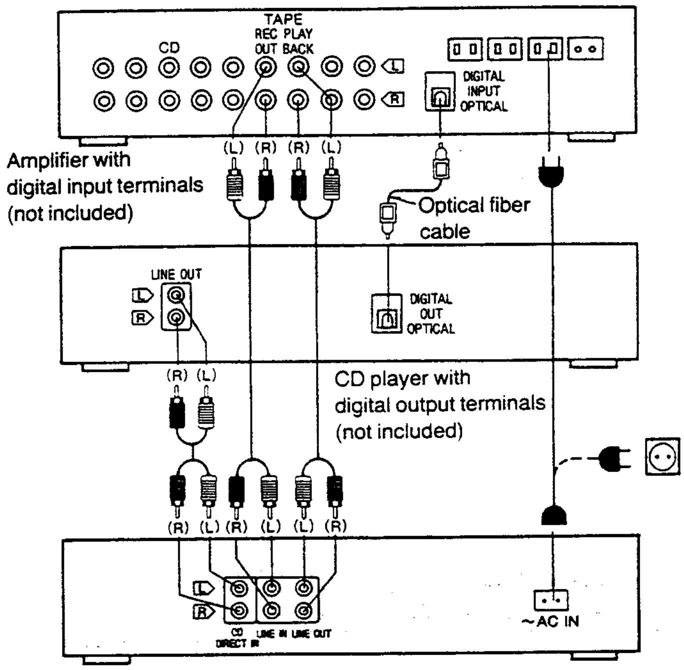


■ Direct recording from CD player



Note:
Return to the regular connections upon completion of the recording.

2 When there are 2 sets of CD player output terminals



Note:
This connection diagram applies for a CD player equipped with digital output terminals. If the CD player is provided with 2 sets of analog output terminals, connect one set to the CD analog input terminals on the amplifier.
These connections obviate the need to change any of the connections for CD direct recording.

CD direct recording

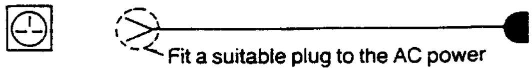
Direct connection between the CD player and CD direct input terminals on the stereo cassette deck enables the line output signals from the CD player to be connected by the shortest possible route without passing them through the amplifier. As a result, the high-range loss and cross talk can be improved.

In addition, the signal-to-noise ratio can also be enhanced since the input sensitivity of the CD direct input terminals is set in accordance with the output level of the CD player and is lower than the line input terminals.

Note:
The configuration of the AC outlet and AC power supply cord differs according to area.

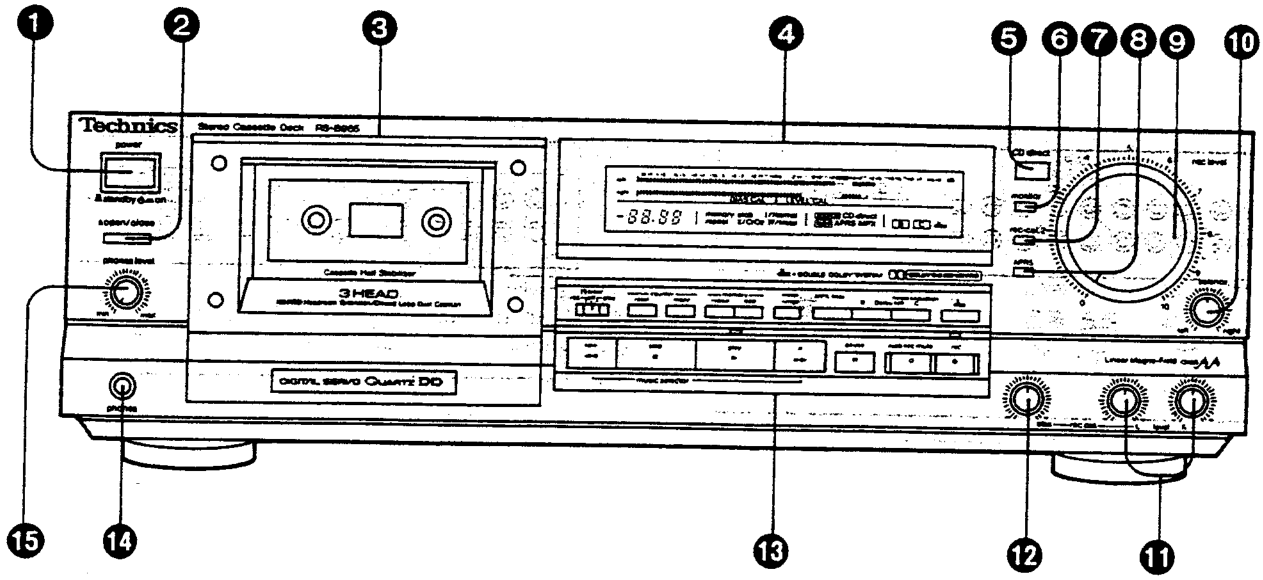
For United Kingdom

Household AC outlet



Fit a suitable plug to the AC power supply cord.

FRONT PANEL CONTROLS AND FUNCTIONS



Control section I

❶ **Power "standby ⏻ /on" switch (power/▮ standby ⏻ ▬ on)**
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the standby ⏻ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

❷ **Open/close button (▲ open/close)**
This button can be used to open or close the cassette holder.

❸ **Cassette holder**

❹ **Display section**

❺ **CD direct button (CD direct)**
This button enables direct input for the signals from the CD player connected to this unit.

❻ **Monitor switch (monitor)**
In order to monitor the tape (check the recording condition), the sound on the tape (immediately after recording) and the sound of the sound source (the original sound, before recording) can be alternately selected by pressing this button. (The corresponding indicator will illuminate.)

❼ **Calibration selector (rec cal.)**
This selector can switch the input level display between the level adjustment indicator and bias adjustment indicator.

❽ **APRS button (APRS)**
This button can be used to hold the peak level while monitoring the input sound. (Refer to page 6.)

❾ **Recording-level control (rec level)**
This control can be used to regulate the recording level and the peak level.

❿ **Recording-balance control (balance)**
This control can be used to balance the left and right sound levels during recording.

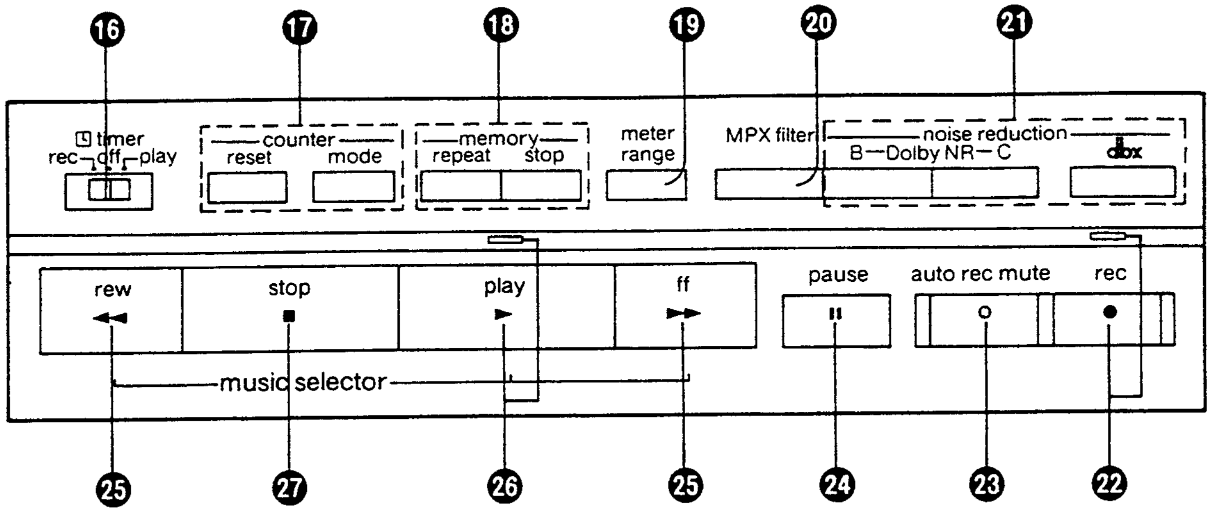
⓫ **Calibration-level control (rec cal. level)**
The sensitivity differences (high or low recording levels) for each tape type can be corrected by using these controls.

⓬ **Calibration-bias control (rec cal. bias)**
The frequency response for each tape type can be equalized by using this control.

⓭ **Operation section**

⓮ **Headphones jack (phones)**

⓯ **Headphones volume control (phones level)**



Control section II

⑯ Timer switch (⏲ timer)
This switch is used to automatically begin a tape recording or tape playback at a certain time, selected by a timer (not included).

⑰ Counter buttons (counter reset/mode)
reset: This button can be used to reset the tape/linear counter indication to "000."/"00.00".

mode: This button can be used to select the tape/linear counter indication.

⑱ Memory-mode buttons (memory repeat/stop)
repeat: This button can be used to set this unit to the "A-B repeat" mode.

stop: This button can be used to rewind the tape to the preset "0000" point when the rewind (◀◀) button is pressed.

⑲ Meter-range selector (meter range)
This selector can be used to select the meter-range display of the input level meter.

⑳ Multiplex filter switch (MPX filter)
This switch prevents the Dolby circuit from operating in error when FM stereo broadcasts are recorded using the noise reduction function.

㉑ Noise-reduction buttons (noise reduction)
These buttons can be used to reduce the hiss noise that is characteristic of tape. This unit is provided with both the Dolby B NR-type and C NR-type, and dbx noise-reduction systems.

㉒ Record button and indicator (rec/●)

㉓ Automatic-record-muting button (auto rec mute/○)
This button can be used to make a silent interval on the tape being recorded on tape deck.

㉔ Pause button (pause/❚❚)

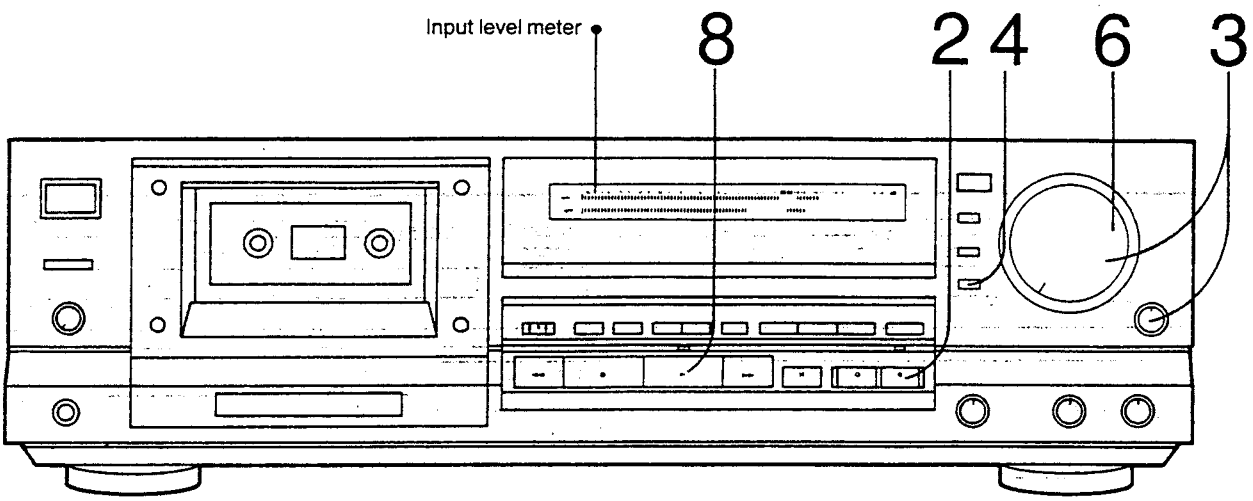
㉕ Rewind/fast-forward/search buttons (rew/◀◀, ff/▶▶)
These buttons can be used to fast forward or rewind the tape, or to easily search for the tune's beginning of the tape quickly.

㉖ Playback button and indicator (play/▶)
This button can be used to start the playback or recording of the cassette.
(The tape will then begin moving in the left-to-right direction.)

When this indicator illuminates steadily, it indicates that this tape deck is in the playback mode or the recording mode. When it flashes continually, this is an indication that this tape deck is in the pause mode or the recording stand-by mode.

㉗ Stop button (stop/■)

■ RECORDING WITH HIGH TONE QUALITY



APRS function

Because the dynamic range of cassette tape is narrower than the dynamic range of a digital source, the recording will be too noisy if the recording level setting is too low, and, conversely, the recorded sound will be distorted if the setting is too high.
It was for this reason that it has always been recommended that the signals to be recorded be first (before recording) input to the cassette deck and the recording level then be set while watching the level meter, but, for former conventional level meter equipped with the peak-hold function, it was necessary to re-adjust and input the signals again if the level setting was too high or too low.

This unit, however, is equipped with the **APRS: Advanced Precise Recording-level System**, which holds and displays the maximum peak of the input signal level, so that once the peak level of the source is held, there is no necessity to re-input the source signals, and the optimum recording level can be set.
- The APRS function can be used only during the recording-standby mode.

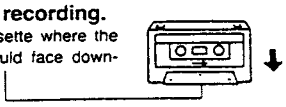
1 Prepare for recording as described in steps 1 to 6.

1 **Switch the amplifier ON, and select the input source.**

2 **Switch OFF the timer switch.**

3 **Switch ON the power "standby ⏻ /on" switch.**

4 **Press the open/close button to open the cassette holder, and then insert the cassette to be used for recording.**
(The part of the cassette where the tape is exposed should face downward.)



Press the open/close button again to close the cassette holder.

5 **Press the button corresponding to the noise-reduction system to be used.**
(The noise-reduction indicator will illuminate.)
If no noise-reduction system is to be used, press the noise-reduction button corresponding to the noise-reduction indicator that is illuminated. (The indicator will then switch OFF.)

6 **The sound source to be recorded should be played before the recording is started in order to adjust the recording level.**

2 Press the record button.

(The recording indicator will illuminate and the playback indicator will flash continuously; the unit will be in the recording stand-by mode.)

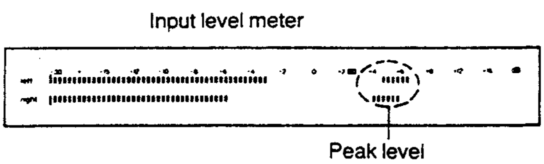
3 Set the recording-level control and the recording-balance control to the suitable position for the sound source.

4 Press the APRS button.

(The APRS indicator will illuminate.)

5 Play the sound source to be recorded, from beginning to end.

[The peak level (the highest level of the input signal) of the sound source will be displayed and held on the input-level meter.]



Note:
The range within which the peak level can be held is −8 dB to +16 dB. Note that the APRS indicator will flash continuously if the peak level of the sound source is input at a level that exceeds the maximum recording level (+16 dB).
If that happens, press the APRS button to cancel the APRS function, and then reset the recording level and set the APRS once again.

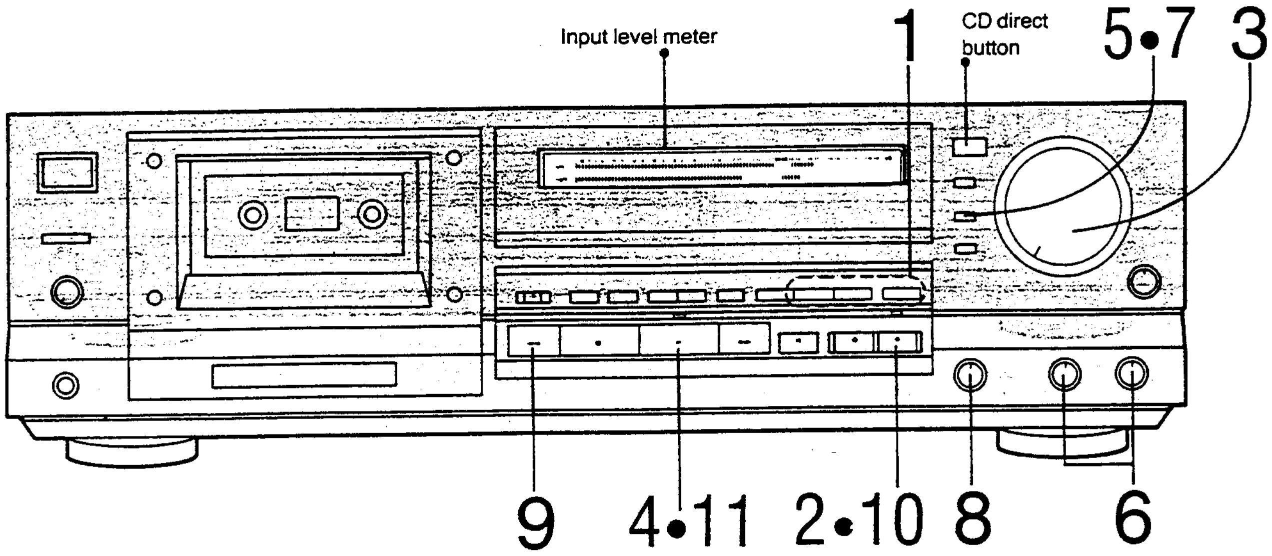
6 Using the recording-level control, adjust the peak level to the desired setting.

The peak level will move to the right when the recording-level control is turned to the right, and will move to the left when the recording-level control is turned to the left.
- The recording-balance control cannot be used to adjust the peak level.

7 Begin playing the sound source from the beginning once again.

8 Press the playback button.

(The playback indicator will illuminate steadily, and the recording will begin.)
The APRS indicator will switch OFF, and the indication of the input-level meter will return to the ordinary peak-hold mode.



Recording calibration

Depending on the type of tape and the brand used, cassette tapes are characterized by individual variations in sensitivity differences (high and low recording levels) and frequency responses (particularly in the high range). In addition, the recording and playback levels differ when recording is done using a noise reduction system so that the sound quality is sometimes impaired.

To deal with these problems, this unit comes with a calibration function which takes the form of bias adjustment and is based on a test oscillator. The tape's performance can therefore be given full rein by setting the optimum bias value and compensating for the sensitivity in accordance with the recording characteristics of the tape while observing the input level display.

■ Before proceeding with calibration

•Switch to the CD direct mode when recording directly from the CD player.

1 **Press the button corresponding to the noise-reduction system to be used.**
(The noise-reduction indicator will illuminate.)
If no noise-reduction system is to be used, press the noise-reduction button corresponding to the noise-reduction indicator that is illuminated. (The indicator will then switch OFF.)

2 **Press the record button.**
(The recording indicator will illuminate and the playback indicator will flash continuously; the unit will be in the recording stand-by mode.)

3 **The sound source to be recorded should be played before the recording is started in order to adjust the recording level.**

4 **Press the playback button.**
(The playback indicator will illuminate steadily, and the recording will begin.)

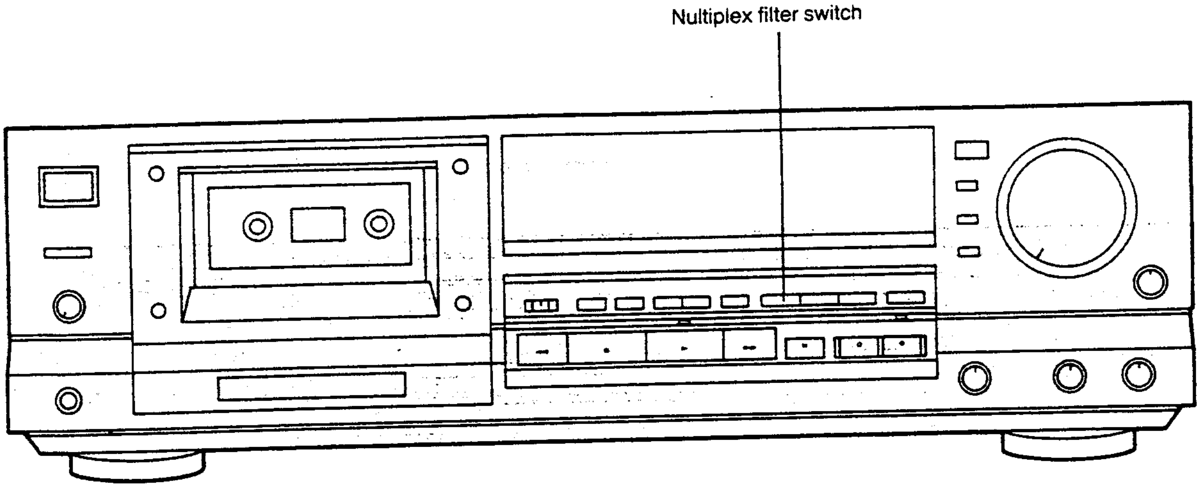
■ Calibration procedure

5 **Press the calibration selector.**
[The input level display switches to the level adjustment indicator. (in figure ① on next page)]

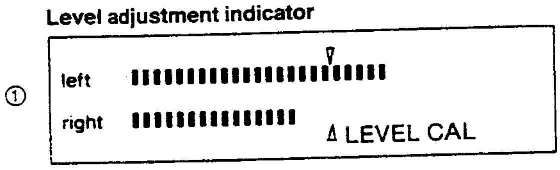
6 **Compensate for the difference in the recording levels using the calibration-level control.**
Adjust the left and right recording levels to the indicator arrow position. (in figure ② on next page)

7 **Press the calibration selector again.**
The level adjustment indicator now switches to the bias adjustment indicator. (in figure ③ on next page)

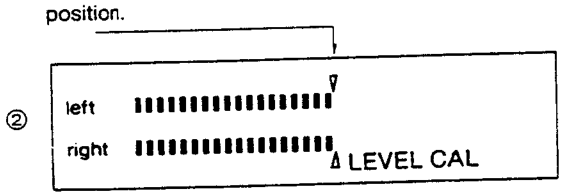
8 **Compensate for the difference in the high-range sound quality using the calibration-bias control.**
[Adjust the high-range recording level to the low-range recording level. (in figure ④ on next page)]



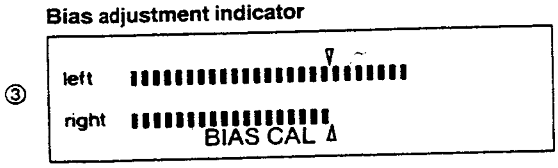
Level adjustment indicator



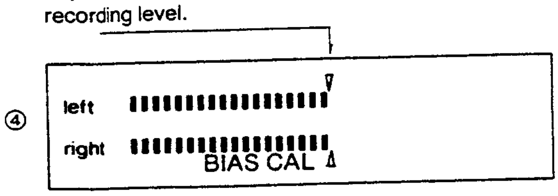
Adjust the left and right recording levels to the arrow position.



Bias adjustment indicator



Adjust the high-range recording level to the low-range recording level.



(The "left" side indicates the recording level of the high frequencies; the "right" side indicates the recording level of the low frequencies.)

■ **Starting the recording**

9 Return to the original play source, and press the rewind button to rewind the tape.

10 Press the record button.
(The recording indicator will illuminate and the playback indicator will flash continuously; the unit will be in the recording stand-by mode.)

11 Press the playback button to start the recording, and start playing the source which is to be recorded.

MXP filter

Because the pilot signals*, etc. included with FM stereo broadcast signals are subjected to Dolby noise-reduction processing in the same way as the music signals when an FM stereo broadcast is being recorded, there is apt to be deterioration of the tone quality, and the noise-reduction effect is reduced.

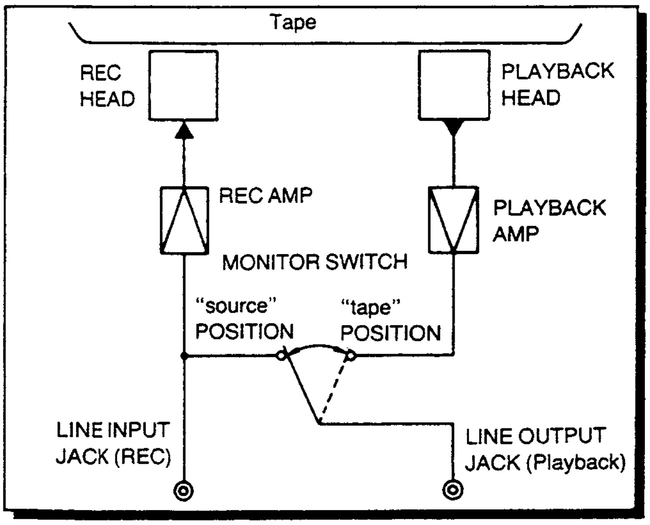
This unit, however, is provided with an MPX filter that filters out the 19 kHz frequency, which is the frequency of the pilot signal. Note that there is virtually no audible effect upon the tone quality as a result of the use of the MPX filter.

This switch can be used during the recording of an FM stereo broadcast that employs Dolby noise reduction so as to prevent misoperation of the Dolby noise reduction.
This switch, however, should be switched OFF when a sound source other than the FM broadcast is being recorded, such as for example, a sound source that has a wide frequency range, such as a compact disc, etc.

***Pilot signal**
The pilot signal is a signal that is used to separate FM broadcast signals in stereo (left and right channels); this signal is generated on a frequency that is very close to the 19 kHz music band.

Monitor Switch

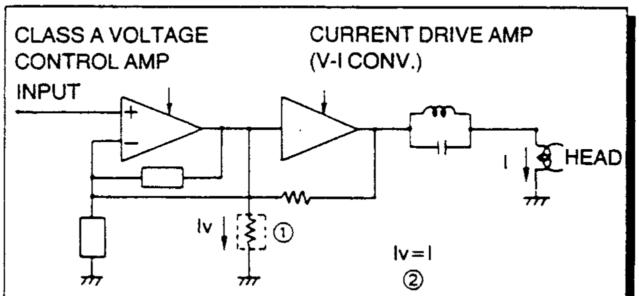
This unit is of 3-head type, and the record head is independent of the playback head. Also, the sound before recording can be compared with the recorded sound by use of the monitor switch, therefore the state of recording can be easily checked.



Linear Magne-Field class AA

The recording-equalizer amplifier is an amplifier for supplying (to the head) the current necessary for recording. Usually, loads such as the recording head and bias trap circuitry (circuitry for control of the bias current) would be applied to the output of this amplifier, with the result that complex changes of the current phase occur, causing distortion of the recording signal.

The recording-equalizer amplifier used in this unit, however, is a linear magne-field class AA amplifier that is a combination of class A voltage-control amplifier circuitry and current-drive amplifier circuitry. (See the figure below.) As a result, a current flow that is equivalent to the current flowing in the pure resistance of the current-drive amplifier can be supplied to the recording head. Consequently, a magnetic field that corresponds to the input signals is produced at the head and is recorded on the tape, which means that recorded sounds are faithful to the original sound source, without fluctuations of the current phase.

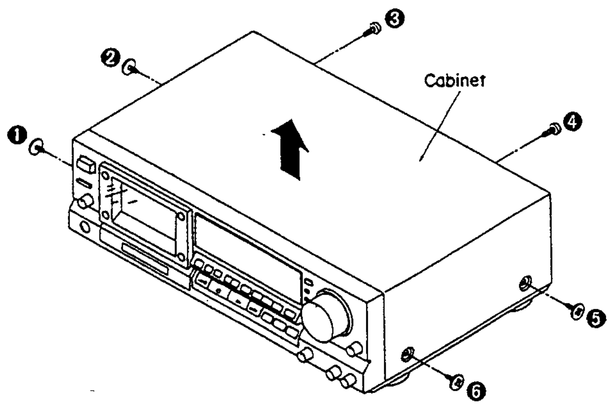


① Pure resistance
② Current flowing through the current-drive amplifier's pure resistance and current flowing through the recording head become equivalent.

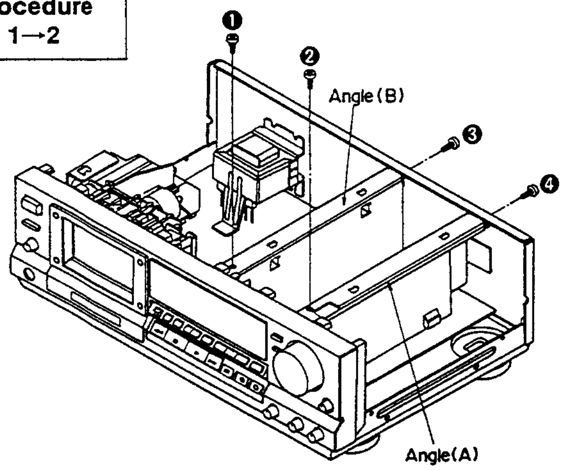
DISASSEMBLY INSTRUCTIONS

"ATTENTION SERVICER"
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. 1	Removal of the cabinet
Procedure 1	• Remove the 6 screws (❶~❻).

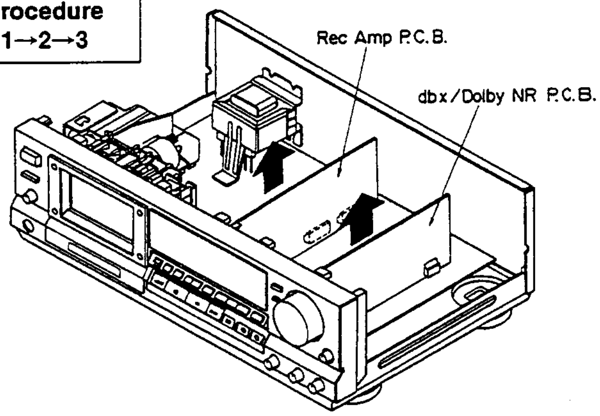


Ref. No. 2	Removal of the angle (A), (B)
Procedure 1→2	



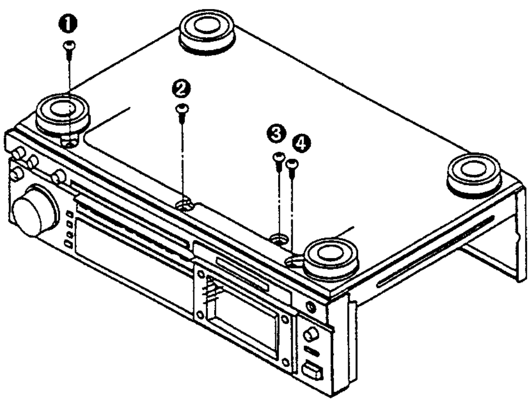
• Remove the 4 screws (❶~❹).

Ref. No. 3	Removal of the rec amp P.C.B. and dbx/Dolby NR P.C.B.
Procedure 1→2→3	

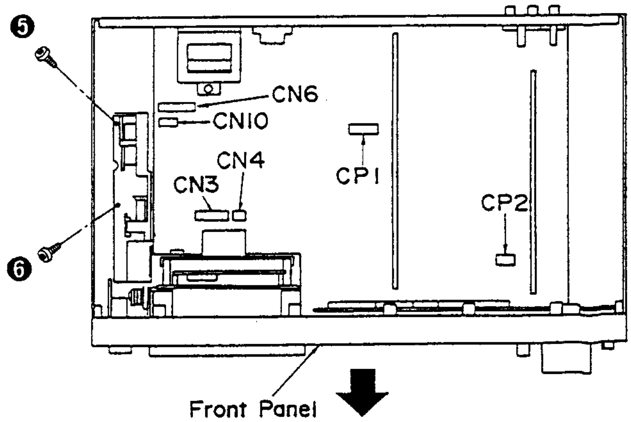


1. Remove the rec amp P.C.B. in the direction of the arrow.
2. Remove the dbx/Dolby NR P.C.B. in the direction of the arrow.

Ref. No. 4	Removal of the front panel
Procedure 1→2→4	



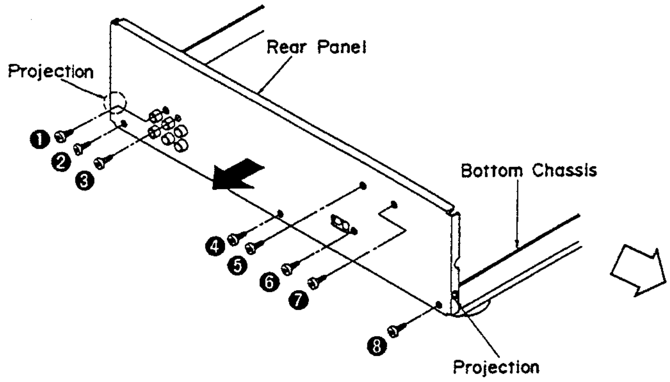
1. Remove the 6 screws (❶~❻).



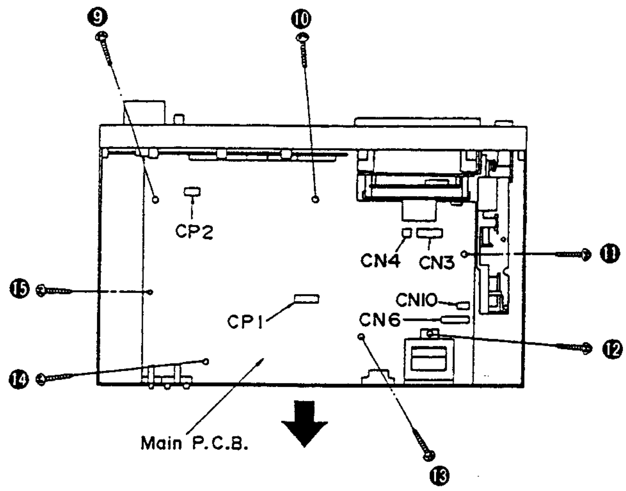
2. Remove the 2 connectors (CP1, CP2).
3. Remove the 4 flat cables (CN3, CN4, CN6, CN10).
4. Remove the front panel in the direction of the arrow.

Ref. No. 5	Removal of the main P.C.B.
Procedure 1→2→3→5	

1. Remove the 8 screws (❶~❽).
2. Remove the rear panel from the projection of the bottom chassis.



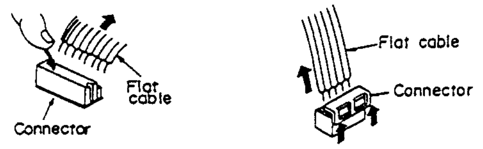
3. Remove the 7 screws (❾~⓯).
4. Remove the 2 connectors (CP1, CP2).
5. Remove the 4 flat cables (CN3, CN4, CN6, CN10).
6. Remove the main P.C.B. in the direction of the arrow.



How to remove the flat cable

- Pull out the flat cable while pressing the connector.

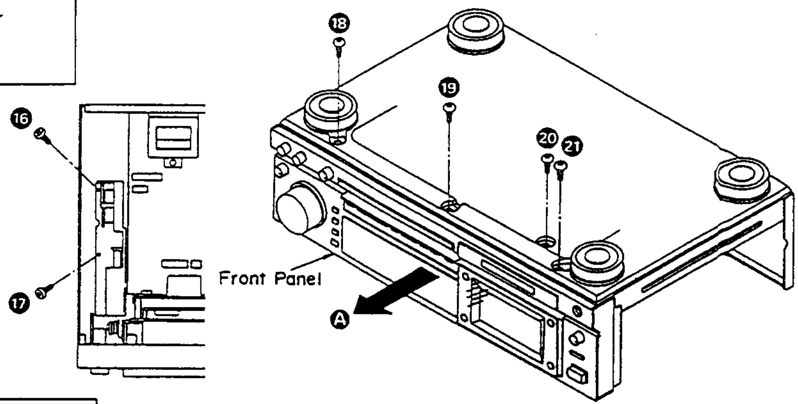
1. Lift the connector.
2. Pull out the flat cable.



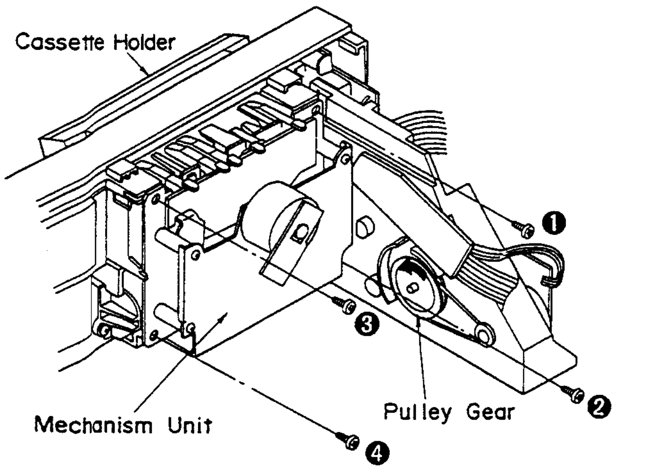
How to check the main P.C.B.

- When checking the soldered surfaces of main P.C.B. and replacing the parts, do as show.

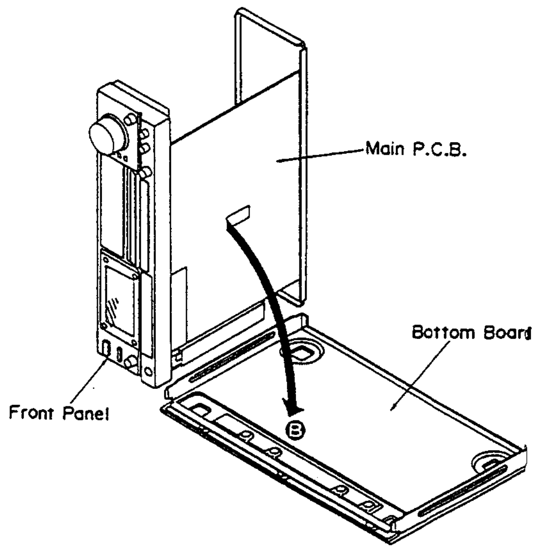
1. Remove the 10 screws (❷, ❹, ❽~⓯) in above figure.
2. Remove the 6 screws (⓰~㉑).
3. Remove the front panel in the direction of the arrow Ⓐ.



Ref. No. 6	Removal of the mechanism unit
Procedure 1→4→6	



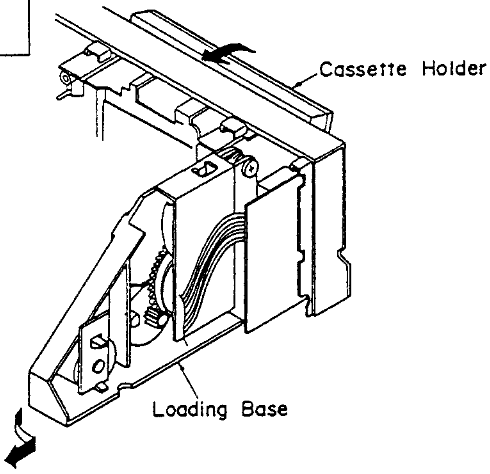
1. Turn the pully gear in the direction of the arrow, and open the cassette holder.
2. Remove the 4 screws (❶~❹).



4. Remove the bottom board in the direction of the arrow Ⓑ.
5. Reinstall the front panel to the main P.C.B.

Ref. No. 7 — **Removal of the loading base**

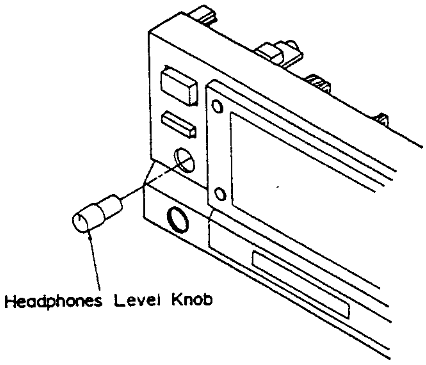
Procedure 1→4→6→7



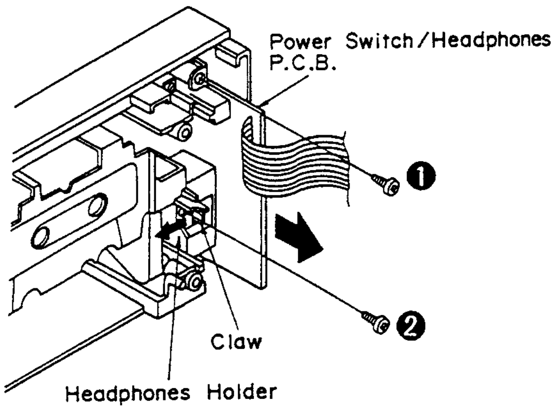
1. Close the cassette holder.
2. Remove the loading base in the direction of the arrow.

Ref. No. 8 — **Removal of the power switch/headphones P.C.B.**

Procedure 1→4→6→7→8



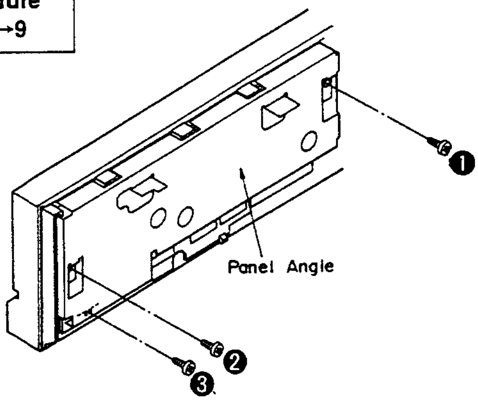
1. Pull out the headphones level knob.



2. Remove the 2 screws (❶, ❷).
3. Release the 1 claw.
4. Remove the headphones holder.
5. Remove the power switch/headphones P.C.B. in the direction of the arrow.

Ref. No. 9 — **Removal of the panel angle**

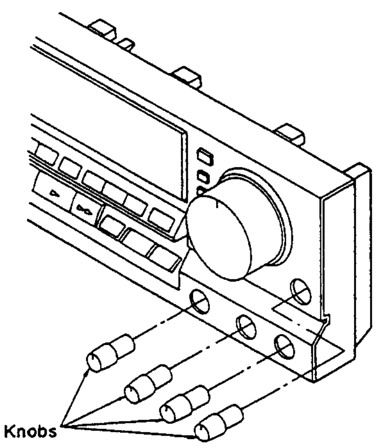
Procedure 1→4→9



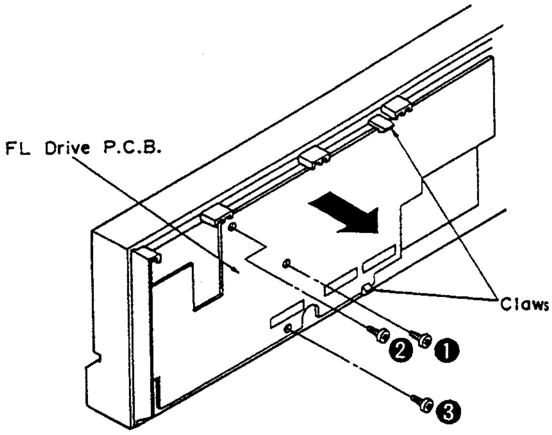
- Remove the 3 screws (❶~❸).

Ref. No. 10 — **Removal of the FL Drive P.C.B.**

Procedure 1→4→9→10

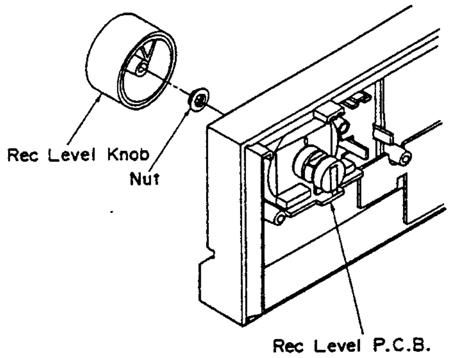


1. Pull out the 4 knobs.



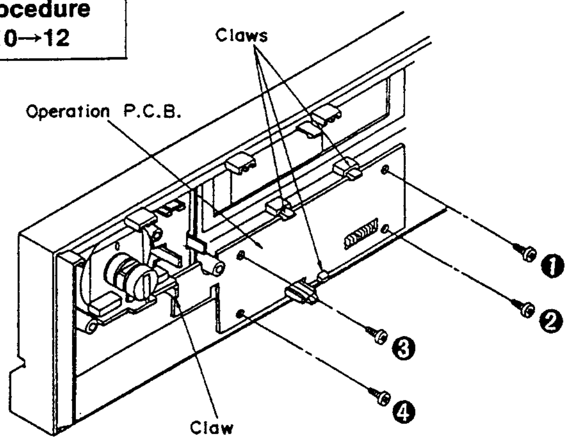
2. Remove the 3 screws (❶~❸).
3. Release the 2 claws.
4. Remove the FL P.C.B. in the direction of the arrow.

Ref. No. 11	Removal of the rec level P.C.B.
Procedure 10→11	



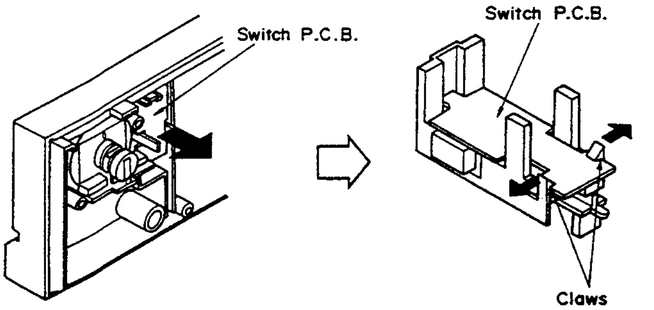
1. Pull out the rec level knob.
2. Remove the 1 nut.
3. Remove the rec level P.C.B. in the direction of the arrow.

Ref. No. 12	Removal of the operation switch P.C.B.
Procedure 10→12	



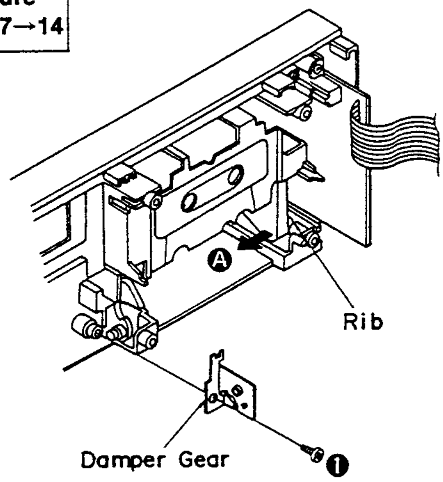
1. Remove the 4 screws (❶~❹).
2. Release the 4 claws.

Ref. No. 13	Removal of the switch P.C.B.
Procedure 10→12→13	

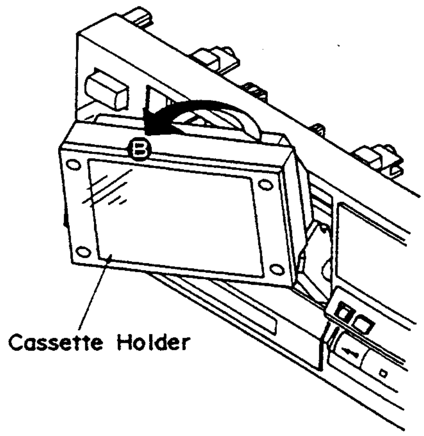


1. Remove the switch P.C.B. in the direction of the arrow.
2. Release the 2 claws.

Ref. No. 14	Removal of the cassette holder
Procedure 1→4→6→7→14	

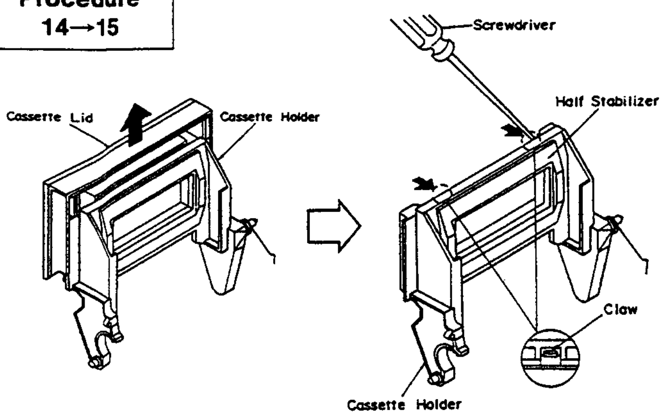


1. Remove the 1 screw (❶).
2. Remove the damper gear.
3. Remove the rib in the direction of the arrow Ⓐ.



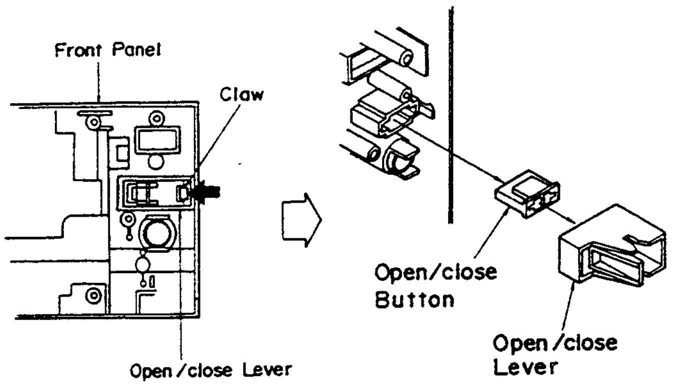
4. Remove the cassette holder in the direction of the arrow Ⓑ.

Ref. No. 15	Removal of the cassette lid and cassette half stabilizer
Procedure 14→15	



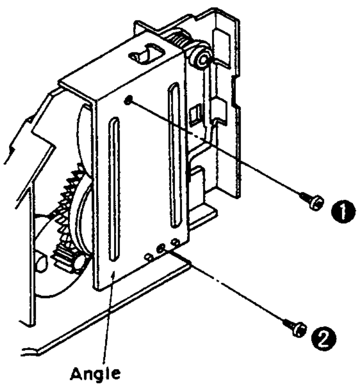
1. Remove the cassette lid in the direction of the arrow.
2. Release the 2 claws.

Ref. No. 16	Removal of the open/close lever and open/close button
Procedure 8→16	

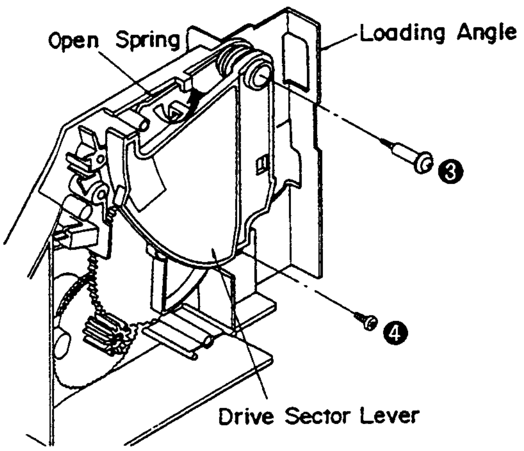


• Release the 1 claw.

Ref. No. 18	Removal of the drive sector lever and loading angle
Procedure 7→18	

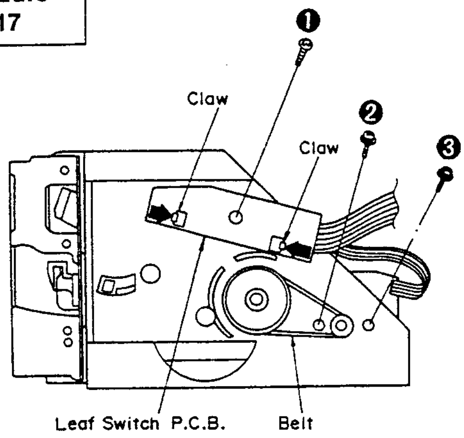


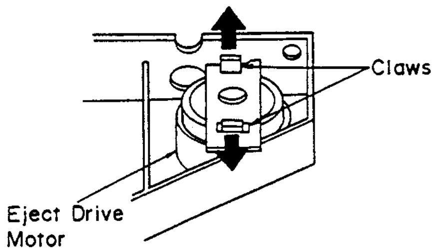
1. Remove the 2 screws (❶, ❷).
2. Remove the angle.



3. Remove the 2 screws (❸, ❹).
4. Remove the loading angle.
5. Remove the open lever spring in the direction of the arrow.

Ref. No. 17	Removal of the leaf switch P.C.B. and eject drive motor
Procedure 7→17	





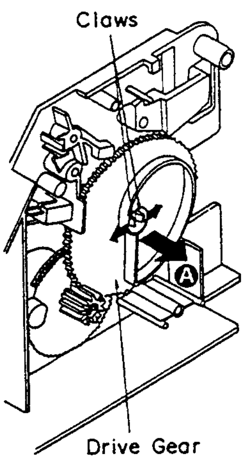
■ Removal of the leaf switch P.C.B.

1. Remove the 1 screw (❶).
2. Release the 1 claw.

■ Removal of the eject drive motor

1. Remove the belt.
2. Remove the 2 screws (❷, ❸).
3. Release the 2 claws.

Ref. No. 19	Removal of the drive gear
Procedure 7→18→19	



1. Release the 2 claws.
2. Remove the drive gear in the direction of the arrow Ⓐ.

RS-B965

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
* Remote Control Ass'y:
Supply period for three years from termination of production.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC201 (E, EK, EF, EH) (EB, EI, XL) (XA, XB)	AN6552F	I.C. PHONO EQ
IC201 (EG)	AN6558F	I.C. PHONO EQ
IC301 (E, EK, EF, EH) (EB, EI, XL) (XA, XB)	M5218L	I.C. TONE AMP
IC301 (EG)	M5220L	I.C. TONE AMP
IC401	SVI3102A	I.C. POWER AMP
TRANSISTORS		
	2SK381DTA	TRANSISTOR
	2SC3112	TRANSISTOR
DIODES		
D601	LN846RP-C	L.E.D
D602	LN446YP	L.E.D
D701 ⚠	SVD1SR35200A	RECTIFIER
D901	SVDS2V20	RECTIFIER
D902	SVDS2V20	RECTIFIER
D903	SVDS2V20	RECTIFIER
D904	SVDS2V20	RECTIFIER
D905	MA4068M	DIODE
D906	MA4068M	DIODE
D907	MA4075M	DIODE
D908	MA4075M	DIODE
LED	LN041330P	DIODE, GAASP
VARIABLE RESISTORS		
VR301	EWCXUAF20B15	VR, MAIN VR
VR302	EWHF5AF20G15	VR, BALANCE
VR303	EWCS6A020C15	VR, TONE VR
VR304	EWCS6A020C15	VR, TONE VR
COILS AND TRANSFORMERS		
L1 (EG)	SLQZ650MH49	CHOKE COIL
L401	SLQY07G-40	CHOKE COIL
L402	SLQY07G-40	CHOKE COIL
T1 ⚠ (E, EG, EF, EH) (EB, EI)	SLT5M478-W1	POWER TRANSFORMER
T1 ⚠ (EK, XL)	SLT5M479-W1	POWER TRANSFORMER
T1 ⚠ (XA, XB)	SLT5M480-W1	POWER TRANSFORMER
FUSES		
F1 ⚠ (EK, XL, XA) (XB)	XBA2C08TB0	FUSES 250V, T0.8A
F1 ⚠ (E, EG, EF, EH) (EB, EI)	XBA2C10TB0	FUSE 250V, T1A
F1 ⚠ (XA, XB)	XBA2C16TB0	FUSE 250V, A1.6A
SWITCHES		
S1 ⚠ (XA, XB)	ESB8248V	SW, POWER SW
S1 ⚠ (E, EG, EK, EF) (EH, EB, EI) (XL)	ESB8249V	SW, POWER SW
S2 ⚠ (XA, XB)	ESE37263	SW, VOLTAGE SELECTOR
S3	SSH578	SW, INPUT SELECTOR
S4	SSH1193	SW, SPEAKER IMPEDANCE
S5	SSH2122	SW, SPEAKER SW

Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1 Ⓚ	SBN1032-4	KNOB
1 Ⓢ	SBN1032-2	KNOB
2 Ⓚ	SBC839E	BUTTON
2 Ⓢ	SBC839-1E	BUTTON
3 Ⓚ	SGX9025	ORNAMENT
3 Ⓢ	SGX9025-1	ORNAMENT
4 Ⓚ	SBC839C	BUTTON
4 Ⓢ	SBC839-1C	BUTTON
5 Ⓚ	SBC839B	BUTTON
5 Ⓢ	SBC839-1B	BUTTON
6 Ⓚ	SBC839A	BUTTON
6 Ⓢ	SBC839-1A	BUTTON
7 Ⓚ	SBC840A	BUTTON
7 Ⓢ	SBC840-1A	BUTTON
8 Ⓚ	SBN1208	KNOB
8 Ⓢ	SBN1111	KNOB
13 Ⓚ	SBC315-7	BUTTON
13 Ⓢ	SBC315-4T	BUTTON
14	SJJ134B	JACK
15 Ⓚ	SBC666-5	BUTTON
15 Ⓢ	SBC666	BUTTON, POWER
16	SUB275	ROD
17 Ⓚ	SKC1880K993	CABINET BODY
17 Ⓢ	SKC1880S983	CABINET BODY
19 (E, EG, EK, EF) (EH, EB, EI) (XL)	SJS305-1	JACK
20	SJT388	FUSE HOLDER
22 ⚠ (E, EG, EK, EF) (EH, EB, EI)	SJS9231-1B	AC INLET
22 ⚠ (XA, XB)	SJS9231-1B	AC INLET
22 ⚠ (XL)	SJS9234B	AC INLET
23 ⚠ (XA)	SJS9232B	AC OUTLET
24 (XA, XB)	SHW35K150-1	WASHER
25	SJF4818-1	TERMINAL BOARD
26	SBC165	BUTTON, IMPEDANCE
27	SUD472	SPACER
29	SJF3062-1N	TERMINAL BOARD
30 (XA)	SGP7291-1A	REAR PANEL
30 (E, EF, EH, EB) (EI)	SGP7291A	REAR PANEL
30 (EK)	SGP7291B	REAR PANEL
30 (EG)	SGP7291C	REAR PANEL
30 (XL)	SGP7291D	REAR PANEL
30 Ⓚ (XB)	SGP7291-2A	REAR PANEL
31 (XA)	SJS9330A	OUTLET COVER
32 (E, EG, EK, EF) (EH, EB, EI) (XA, XB)	SJS9231A	AC INLET COVER
32 (XL)	SJS9234A	AC INLET COVER
36	SJT30640LX-V	CONNECTOR
36	SJT30740LX-V	CONNECTOR
37	[illegible]	BOTTOM BOARD
37-1	SKL293	FOOT
38	SXE1134	HEAT SINK
39 Ⓚ	SGWU600-KE	FRONT PANEL
39 Ⓢ	SGWU600-SE	FRONT PANEL
39-1 Ⓚ	SMC6424-1	SHIELD COVER
41	SMX943	RECTIFIER
42	SMC1195-4	SHIELD COVER
N1	SNE4021	NUT
N2	XTB3+8G	SCREW
N3	XTW3+8T	SCREW
N4 Ⓚ	SNE2129-3	SCREW
N4 Ⓢ	SNE2129-2	ORNAMENT SCREW
N5	XTBS3+8JFZ1	SCREW
N6	XTB3+6FFZ	SCREW
N7	SNE2126	ORNAMENT SCREW
N8	XTB3+16J	SCREW
N9 (XA, XB)	SNE2095-5	NUT
N9	XTBS3+8JFZ1	SCREW
N10	XSN3+6S	SCREW

Ref. No.	Part No.	Description
PACKING MATERIAL		
P1 (EF)	SPG6189	PACKING CASE
P1 Ⓚ (E, EG, EK, EH) (EB, EI, XL) (XA, XB)	SPG6187	CARTON BOX
P1 Ⓢ (E, EG, EK, EH) (EB, EI, XL) (XA)	SPG6188	PACKING CASE
P2	SPS5104	PAD
P3	SPS5105	PAD
P4	SPS5106	PAD
P5	SPP719	PROTECTION COVER
ACCESSORIES		
A2 ⚠ (E, EG, EF, EH) (EB, EI)	SFDAC05E03	POWER CORD
A2 ⚠ (EK)	SFDAC05G02	POWER CORD
A2 ⚠ (XL)	SJA173	POWER CORD
A2 ⚠ (XB)	SJA183	POWER CORD
A2 ⚠ (XA)	SJA185	POWER CORD
A4 (E, EH, EB)	SQF13134	INSTRUCTION BOOK
A4 (EG)	SQF13135	INSTRUCTION BOOK
A4 (EK)	SQF13136	INSTRUCTION BOOK
A4 (XA)	SQF13137	INSTRUCTION BOOK
A4 (EF, XL)	SQF13165	INSTRUCTION BOOK
A4 (EI)	SQF13166	INSTRUCTION BOOK
A4 Ⓚ (XB)	SQF13138	INSTRUCTION BOOK
A5 ⚠ (XA, XB)	RJP120ZBS-H	AC PLUG ADAPTOR

• IC551 (HD404302SA07): MICROCOMPUTER (This microcomputer is used for FL meter operation.)

Pin No.	Mark	I/O Division	Function
1	S5	O	Segment signal for FL display
2	S6	O	
3	S7	O	
4	Vdisp	—	Pull down power supply terminal (−Vcc)
5	S8	O	Segment signal for FL display
6	S9	O	
7	S10	O	
8	S11	O	
9	S12	O	
10	S13	O	
11	S14	O	
12	S15	O	
13	S16	O	
14	S17	O	
15	S18	O	
16	S19	O	
17	RPT	I	Reel pulse signal of tape up reel
18	RPS	I	Reel pulse signal of supply reel
19	MP	O	Memory pulse signal ("L" for 50ms. with counter "0000")
20	DISP	I	Serial data signal (ACTIVE: "H")
21	GND	—	GND terminal
22	AVcc	—	Power supply terminal
23	VR IN	I	Rec level control (VR MAX...+5V)
24	F IN	I	Function key terminal (COUNTER RESET/COUNTER MODE/APRS)
25	SIG L	I	LCH level signal
26	SIG R	I	RCH level signal
27	AVss	—	Connected to GND
28	RESET	I	Reset terminal (with Reset: "H")
29	$\overline{\text{TEST}}$	I	Test terminal
30	OSC 1	O	Clock OSC terminal (4MHz)
31	OSC 2	I	
32	Vcc	I	Power supply terminal
33	G1	O	Grid signal for FL display
34	G2	O	
35	G3	O	
36	G4	O	
37	G5	O	
38	G6	O	
39	S1	O	Segment signal for FL display
40	S2	O	
41	S3	O	
42	S4	O	

■ TERMINAL FUNCTION OF IC'S

• IC901 (MB88511-250N): MICROCOMPUTER (This microcomputer is used for mechanical operation.)

Pin No.	Mark	I/O Division	Function
1	DMT	O	Line out mute signal ("H"...ON, "L"...OFF)
2	RMT	O	REC AMP mute signal ("H"...ON, "L"...OFF)
3	$\overline{BOS}$	O	BIAS OSC ON/OFF control signal ("H"...OFF, "L"...ON)
4	$\overline{REC}$	O	REC LED ON/OFF control signal ("H"...OFF, "L"...ON)
5	$\overline{PLAY}$	O	PLAY LED ON/OFF control signal ("H"...OFF, "L"...ON)
6	EJECT F	O	Power eject motor open control signal ("H"...OPEN, "L"...CLOSE/STOP)
7	EJECT R	O	Power eject motor close control singnal ("H"...CLOSE, "L"...OPEN/STOP)
8	$\overline{CAPM}$	O	Capstan motor ON/OFF control signal ("H"...OFF (POWER OFF or ABNORMAL CONDITION), "L"...ON)
9	$\overline{SOL1}$	O	Trigger solenoid ON/OFF control signal ("H"...OFF, "L"...ON)
10	$\overline{SOL2}$	O	Brake solenoid ON/OFF control signal ("H"...OFF, "L"...ON)
11	$\overline{SOL2C}$	O	Brake solenoid hold ON/OFF control signal ("H"...OFF, "L"...ON (FF/REW/MS)
12	RP (REEL PULSE)	I	Reel pulse signal
13	RMR	O	Reel motor reverse control signal ("H"...REW, "L"...STOP/PLAY/FF)
14	RMF	O	Reel motor foward control signal ("H"...FF/PLAY, "L"...STOP/REW)
15	$\overline{OSC}$	I	Single capstan/Dual capstan select signal ("H"...DUAL CAPSTAN, "L"...SINGLE CAPSTAN)
		O	Calibration OSC circuit ON/OFF control signal ("H"...OFF, "L"...ON)
16	Ex	I	Clock OSC terminal (6MHz)
17	X	O	
18	$\overline{RES}$	I	Reset signal ("L"...RESET)
19	OSCF	O	Not used in this unit. Calibration OSC circuit (400Hz/10kHz) select signal ("H"...HIGH FREQ. (10kHz), "L"...LOW FREQ. (400Hz)
20	$\overline{POF}$	I	AC POWER detect signal
21	Vss	—	GND
22	$\overline{DIRECT}$	I	CD direct operation det. signal
		O	CD direct/LINE input select control signal ("H"...CD DIRECT, "L"...LINE INPUT)
23	$\overline{C}$	O	Dolby NR mode select signal: NR OFF / Dolby B / Dolby C / dbx — $\overline{C}$: H / H / L / L
24	$\overline{B}$		$\overline{B}$: H / L / H / L
25	MPX	O	MPX coil ON/OFF control signal ("H"...MPX OFF, "L"...MPX ON)
26	T/$\overline{S}$	I	Two head/Three head select signal ("H"...THREE HEAD)
		O	Tape/Source monitor select control ("H"...TAPE MONITOR, "L"...SOURCE MONITOR)
27	$\overline{HALF}$	I	Cassette half det. SW terminal ("L"...ON)
28	$\overline{MODE}$	I	Mechanism mode SW terminal
29	$\overline{ARM}$	I	Auto Rec Mute key signal ("L"...PUSH)
30	AVss	—	Connected to GND
31	AV$\overline{R}$	—	Connected to GND
32	AVcc	—	Power supply terminal
33	KEY 1	I	Key SW input (STOP/FF REW/PLAY/REC/PAUSE/ C/B/MPX/TIMER REC/TIMER PLAY)
34	KEY 2	I	Key SW input (MEMORY REPEAT/MEMORY STOP/EJECT/MONITOR/CD DIRECT/ OSC/TEST)
35	ATS	I	Auto Tape Select SW input (ATSC/ATSM/EJECT OPEN LEAF SW)
36	INH	I	REC INH SW input (REC INH/EJECT MOTOR LEAF SW)
37	SYNC	—	Connected to GND
38	DISP	O	Serial data signal of FL display (ACTIVE: "H")
39	MSP	I	Music select det. signal ("H"...NO SIGNAL, "L"...ON SIGNAL)
40	$\overline{MEMORY\ PULSE}$	I	Memory Pulse signal
41	$\overline{REMOCON}$	I	Not used in this unit. Remote control serial data ("L" for 50ms. with counter "0000")
42	Vcc	—	Power supply terminal

REC CAL. ADJUSTMENT

1. After the overall frequency characteristics and over all gain are adjusted, insert the test tape (QZZCRA) in the unit and then set the recording mode (REC/PLAY).

– Level Adjustment –

2. First, press the REC CAL button. (The indication "LEVEL CAL" will appear in the FL meter.)
3. Adjust **VR9** so that the level of the right and left channels reach the ⧗ mark as shown.

– Bias Adjustment –

4. Next, press the REC CAL button again. ("BIAS CAL" will be displayed in the FL meter.)
5. Adjust **VR10** so that the indication of the left channel level reaches the ⧗ mark as shown.

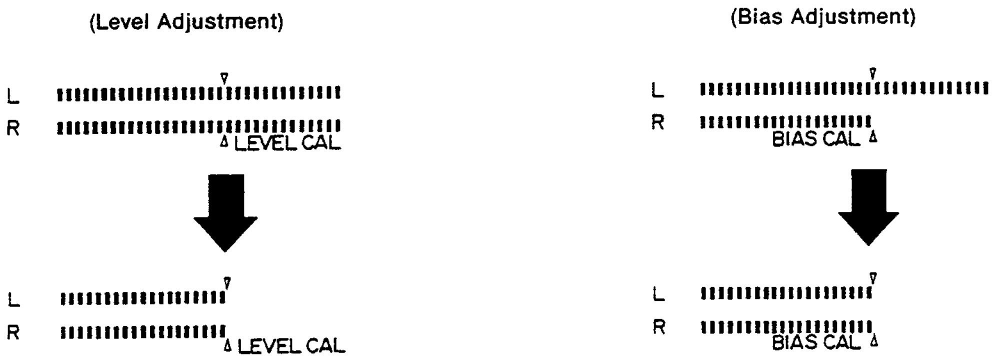


Fig. 19

Note: Unless the overall frequency and overall gain are adjusted so that the L/R channel levels are the same, there will be a difference between the L/R channels levels in the level and bias adjustments.

7. Then, with the check bar, make sure that the check bar does not come in contact with the tape guide. If it does, turn the screw as shown in Fig. 5 until the check bar does not come in contact with the tape guide.
8. After making these adjustments, insert a tape with the mirror (QZZCRD) and play back the tape. Check if the tape runs smoothly (i.e. does not get twisted).
9. Follow "Head Azimuth Adjustment" procedures on page 19.
10. After following the adjustment procedures, repeat steps 3 to 10 and check if trouble occurs (if it does, remedy it).

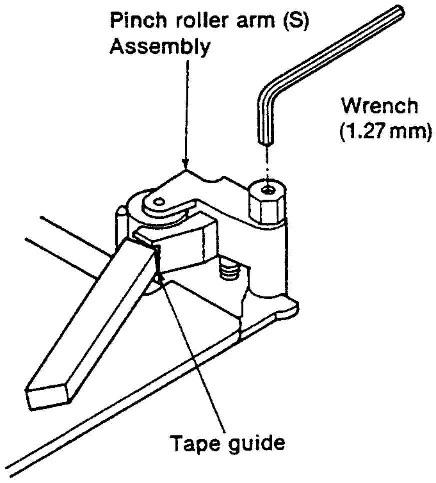


Fig. 5

■ Adjustment procedures when replacing "Pinch Arm S"

1. Install the head alignment gauge and set the play mode.
2. Adjust the height of the pinch arm with the check bar, using the height of tape guide on the head as reference.

■ If the already adjusted "Screw H (Height Adjustment Screw) and Screw T (Tilt Adjustment Screw)" are wrongly turned

- Install the head alignment gauge (QZZ0207), set the play mode, and turn screws H and T until the check bar does not come in contact with the tape guide on the head.
- Then, follows steps 1 to 10 in "Replacing, Installing and Adjusting the Head".

Replacing, Installing and Adjusting the Head

Adjustment Screws and Head Screws

1. Remove the head by removing the two head screws (see Fig. 1).
2. Install the head with the two head screws, holding the head facing in the direction of arrow 1 (toward the left) (see Fig. 1).
3. Install the head alignment gauge (QZZ0207) in the mechanism and set the unit to the play mode.
4. With the check bar, check if it comes in contact with the head. (See Figs. 2 and 3)

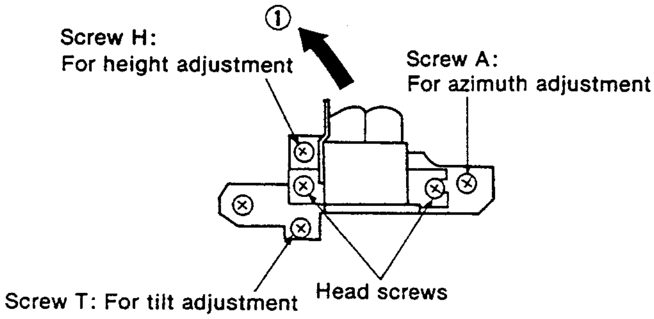


Fig. 1

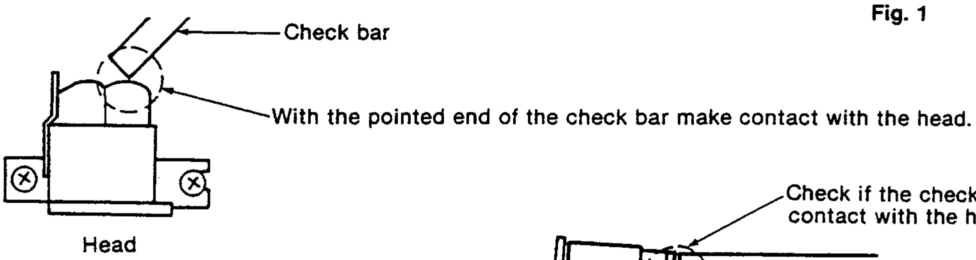


Fig. 2

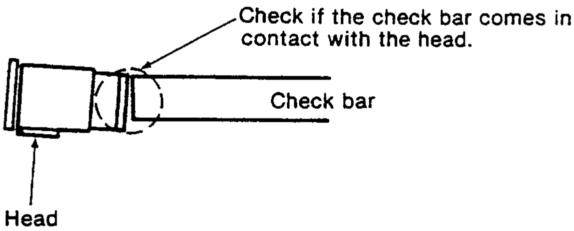


Fig. 3

* If the check bar and head do not come in contact, adjust the head with the "Tilt Adjustment Screw".

5. With the check bar, make sure that the check bar and tape guide do not come in contact, and visually check that the head is placed horizontally (azimuth aligned).

   * If the check bar comes in contact with the tape guide, make adjustments as follows. (See Fig. 4.)

   [If the check bar comes in contact with the top of the tape guide:]

   Turn screw H (height adjustment screw) clockwise (as shown in Fig. 1) until the check bar does not come in contact with the tape guide. Then turn screw T (tilt adjustment screw) in the same way as screw H was turned. Finally, turn screw A (azimuth alignment screw) counterclockwise as many degrees as screws H and T were turned.

   [If the check bar comes in contact with the bottom of the tape guide:]

   Turn screw H (height adjustment screw) counterclockwise until the check bar does not come in contact with the tape guide. Then turn screw T (tilt adjustment screw) in the same way as screw H was turned. Finally, turn screw A (azimuth alignment screw) clockwise as many degrees as screws H and T were turned.

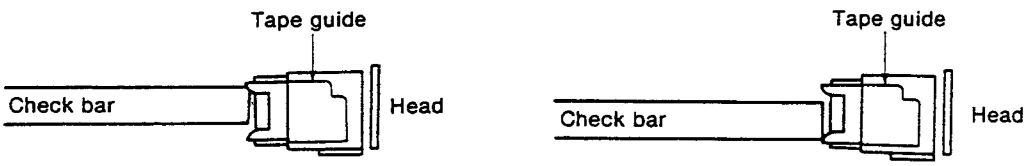
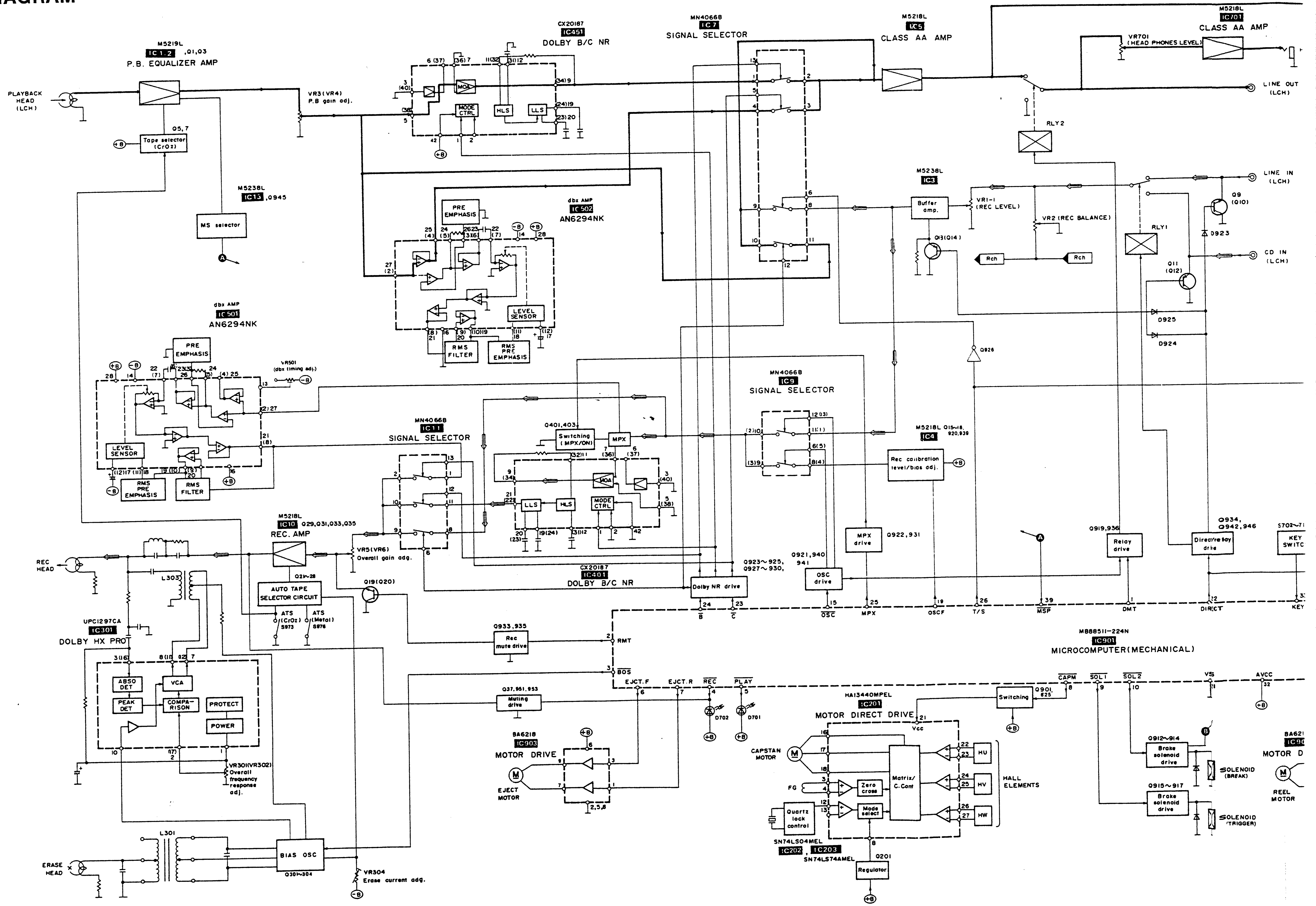
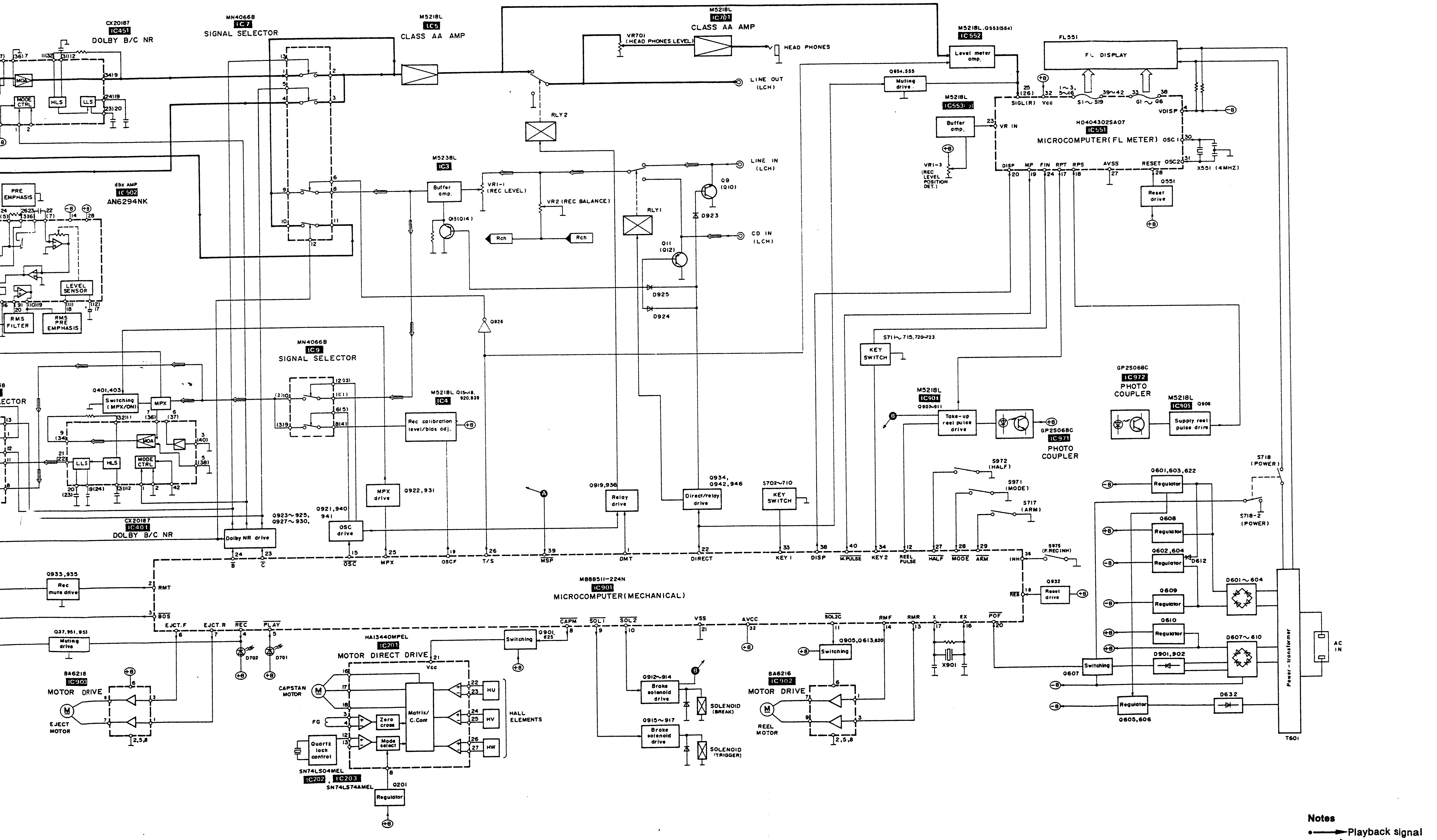


Fig. 4

6. With the check bar, make sure that the check bar does not come in contact with the tape guide on pinch arm S. If it does, make adjustment with a hex wrench (1.27mm) until the check bar does not come in contact with the pinch arm.

■ BLOCK DIAGRAM





Notes
•——►Playback signal
•═══>Recording signal

■ SCHEMATIC DIAGRAM

(Parts list on pages 45~47, 55~58.)

(This schematic diagram may be modified at any time with development of new technology.)

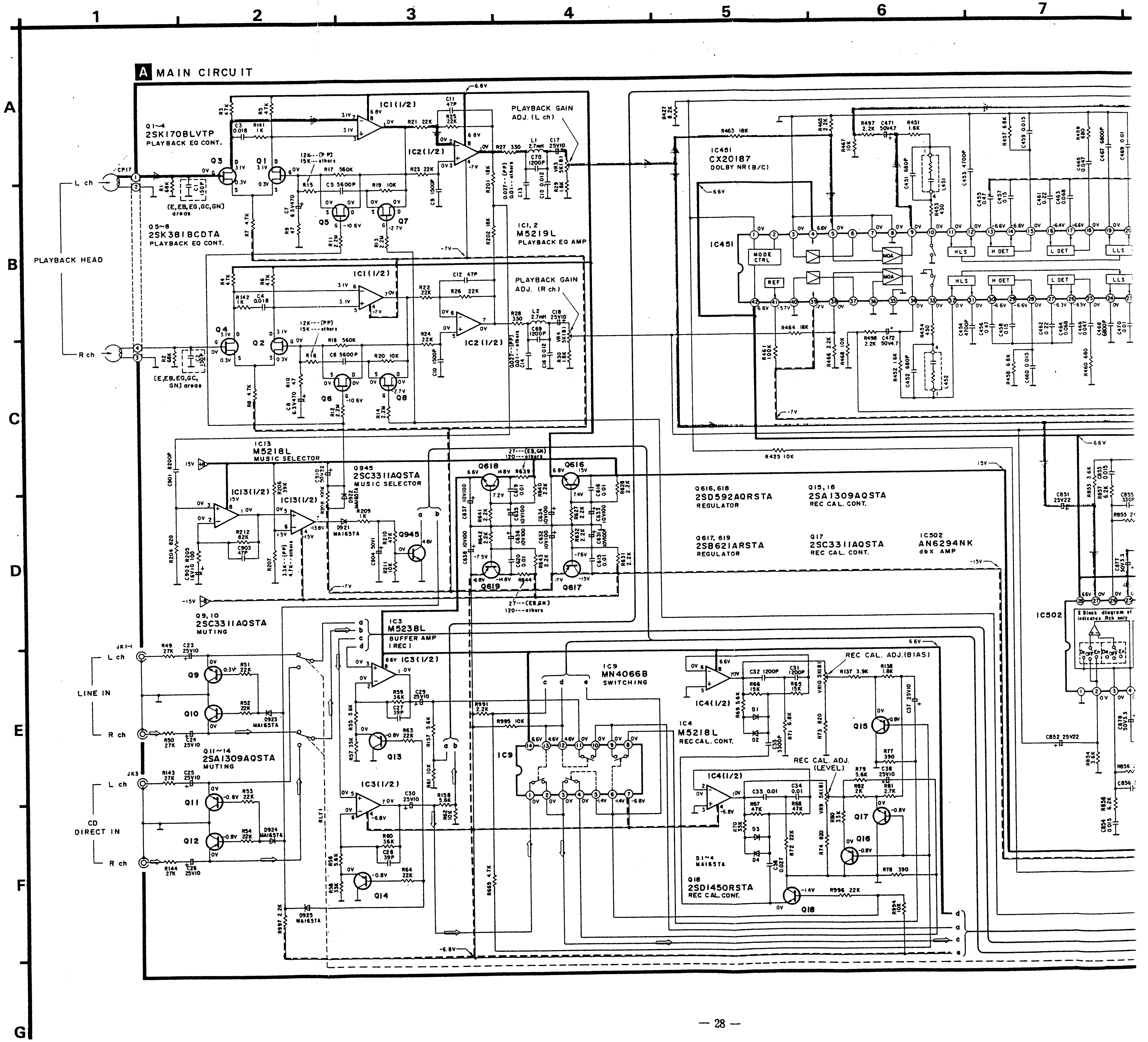
Notes:

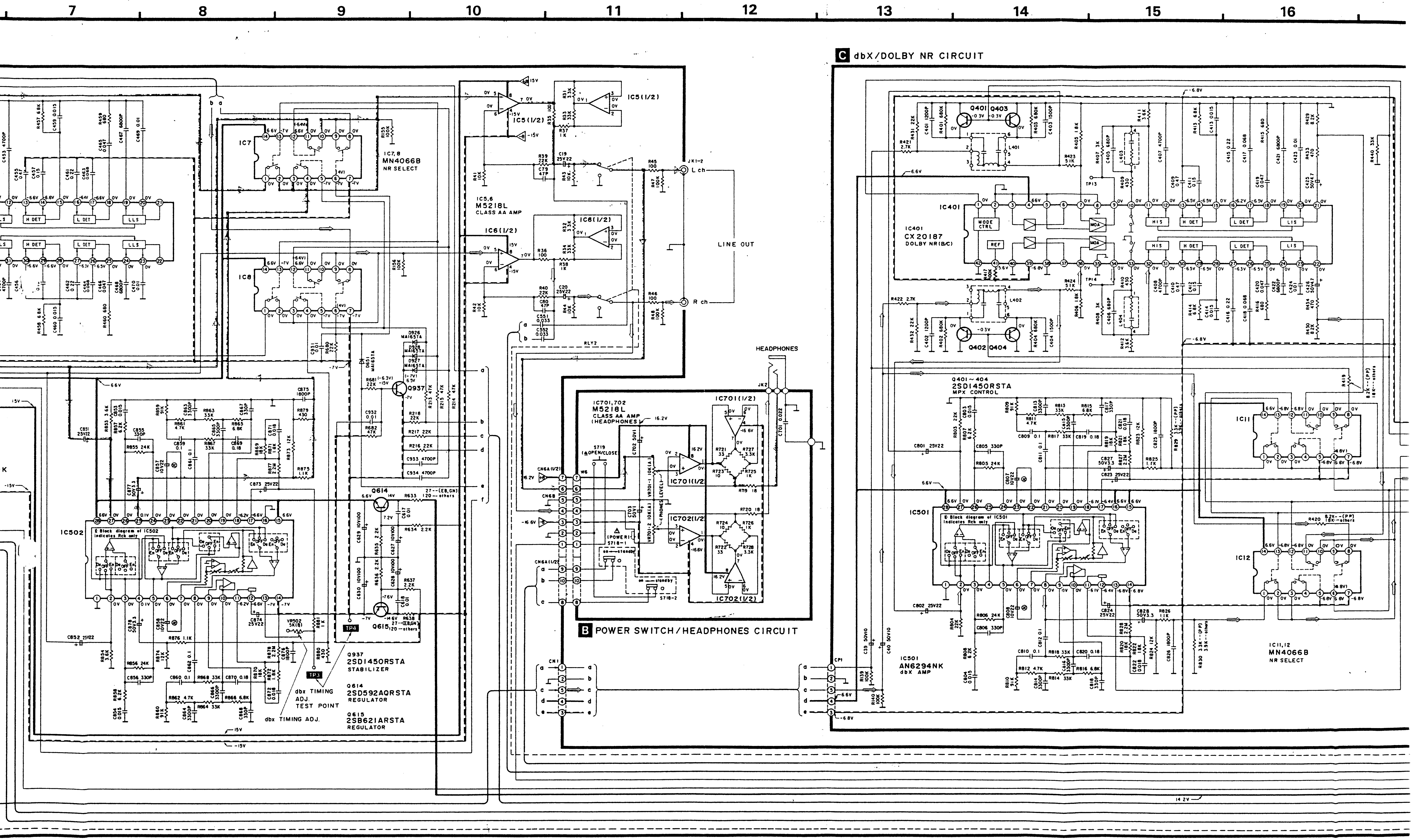
- S601: Voltage selector switch (Voltage selector) in "240V" position. (110V ← 127V ← 220V ← 240V) ((GC) area only.)
- S701 : Stop switch (stop) in "off" position.
- S702 : F.F. switch (ff) in "off" position.
- S703 : Rew switch (rew) in "off" position.
- S704 : Playback switch (Play) in "off" position.
- S705 : Record switch (rec) in "off" position.
- S706 : Pause switch (pause) in "off" position.
- S707 : Dolby noise-reduction switch (Dolby NRC) in "off" position.
- S708 : Dolby noise-reduction switch (Dolby NR B) in "off" position.
- S709 : Multiplex filter switch (MPX filter) in "off" position.
- S710 : Timer switch (timer) in "off" position.
- S711 : Counter reset switch (counter reset) in "off" position.
- S712 : Counter mode switch (counter mode) in "off" position.
- S713 : Meter range switch (meter range) in "off" position.
- S714 : Memory mode switch (memory repeat) in "off" position.
- S715 : Memory mode switch (memory stop) in "off" position.
- S716 : "dbx" switch in "off" position.
- S717 : Automatic-record-muting switch (auto rec mute) in "off" position.
- S718 : Power switch (standby ⏻ /on) in "on" position.
- S719 : Open/close switch (open/close) in "off" position.
- S720 : Calibration selector switch (rec cal.) in "off" position.
- S721 : APRS switch (APRS) in "off" position.
- S722 : CD Direct switch (CD Direct) in "off" position.
- S723 : Monitor switch (monitor) in "off" position.
- S801 : Motor switch in "off" position. (Loading)
- S802 : Open switch in "off" position. (Loading)
- S971 : Mode switch in "off" position.
- S972 : Cassette half detection switch in "off" position.
- S973 : ATS (CrO_2) switch in "off" position.
- S975 : Rec inhibit switch in "off" position.
- S976 : ATS (Metal) switch in "off" position.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
  1K=1,000 (Ω), 1M=1,000k (Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
  ( ) ....Voltage values at record mode.
  For measurement us EVM.
- Important safety notice
  Components identified by △ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- (▬▬< +B >▬▬) indicates +B (bias).
- (▪▪▪< −B >▪▪▪) indicates −B (bias).
- (⇛) indicates the flow of the playback signal.
- (⇨) indicates the flow of the record signal.

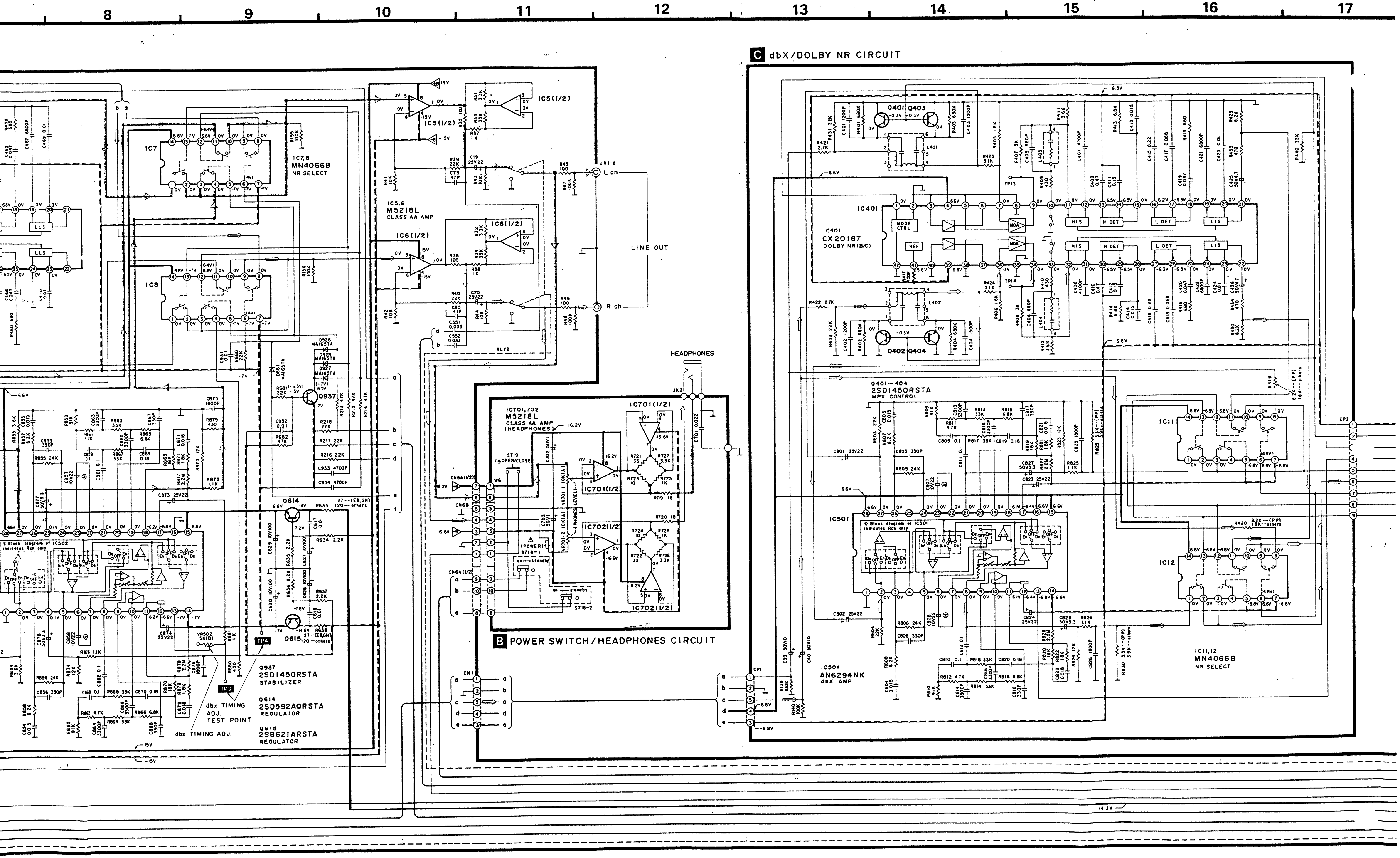
∗Caution!

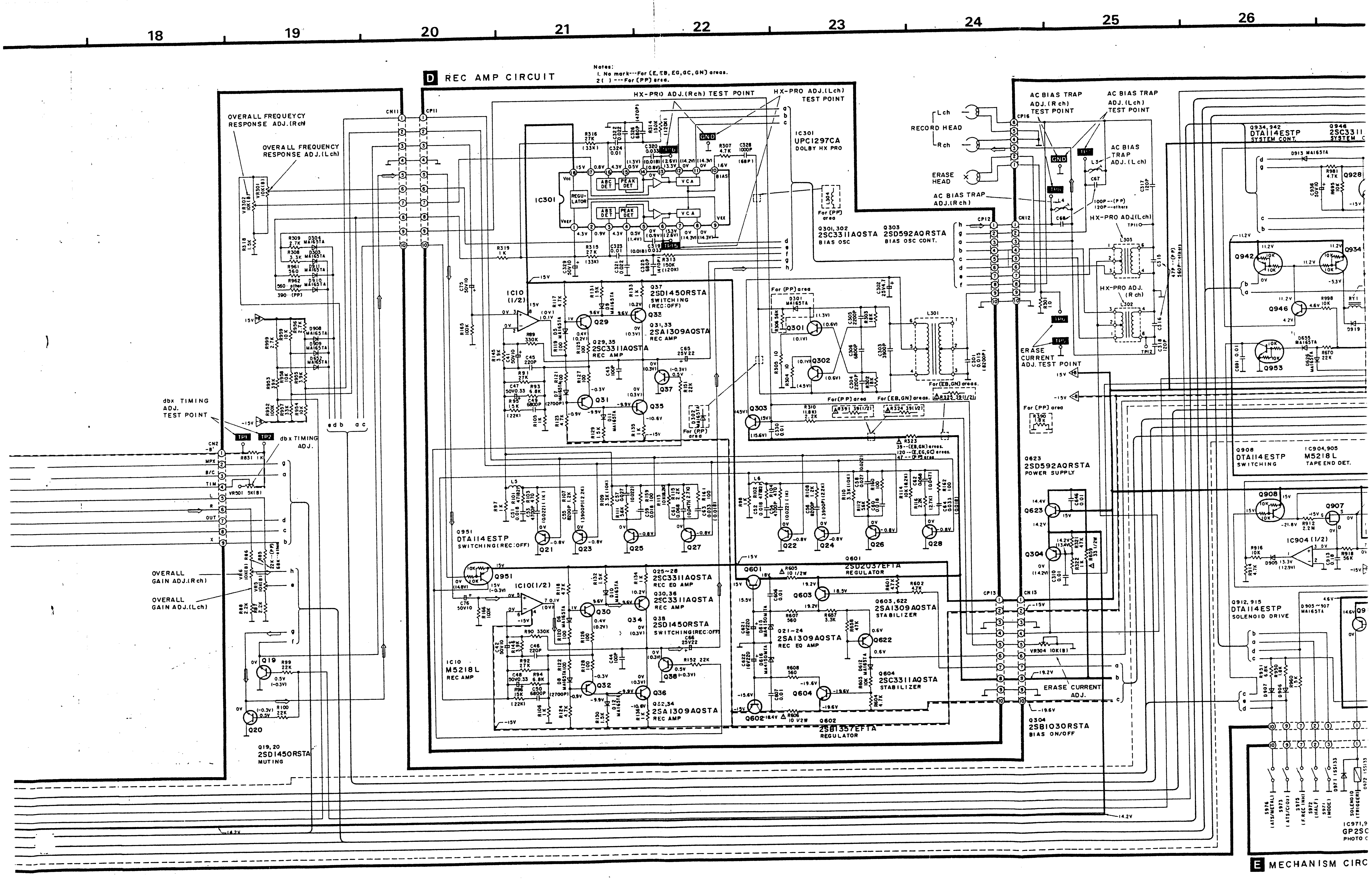
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

∗ Cover the parts boxes made of plastics with aluminum foil.
∗ Ground the soldering iron.
∗ Put a conductive mat on the work table.
∗ Do not touch the legs of IC or LSI with the fingers directly.

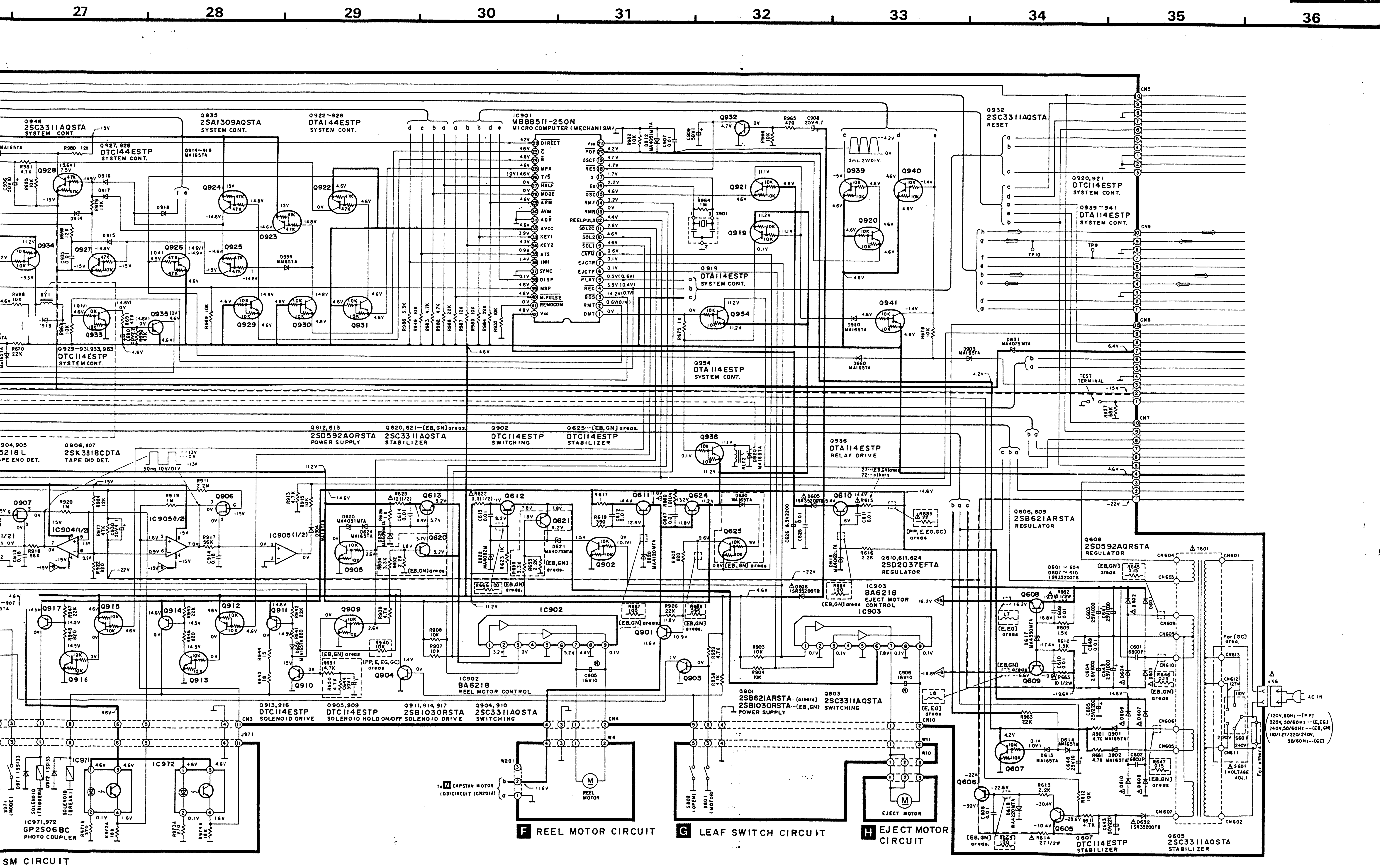



C dbX/DOLBY NR CIRCUIT
B POWER SWITCH/HEADPHONES CIRCUIT
IC7,8
MN4066B
NR SELECT
IC5,6
M5218L
CLASS AA AMP
LINE OUT
L ch
R ch
HEADPHONES
IC701,702
M5218L
CLASS AA AMP
(HEADPHONES)
IC401
CX20187
DOLBY NR(B/C)
Q401~404
2SD1450RSTA
MPX CONTROL
IC501
AN6294NK
dbx AMP
IC11,12
MN4066B
NR SELECT
Q937
2SD1450RSTA
STABILIZER
Q614
2SD592AQRSTA
REGULATOR
Q615
2SB621ARSTA
REGULATOR
dbx TIMING ADJ.
TEST POINT
dbx TIMING ADJ.


C dbX/DOLBY NR CIRCUIT
B POWER SWITCH/HEADPHONES CIRCUIT
IC7
IC8
IC7,8
MN4066B
NR SELECT
IC5(1/2)
IC6(1/2)
IC5,6
M5218L
CLASS AA AMP
LINE OUT
L ch
R ch
HEADPHONES
IC701,702
M5218L
CLASS AA AMP
(HEADPHONES)
IC701(1/2)
IC702(1/2)
IC401
CX20187
DOLBY NR(B/C)
Q401~404
2SD1450RSTA
MPX CONTROL
IC501
AN6294NK
dbx AMP
IC11
IC12
IC11,12
MN4066B
NR SELECT
Q937
2SD1450RSTA
STABILIZER
Q614
2SD592AQRSTA
REGULATOR
Q615
2SB621ARSTA
REGULATOR
dbx TIMING ADJ.
TEST POINT
dbx TIMING ADJ.

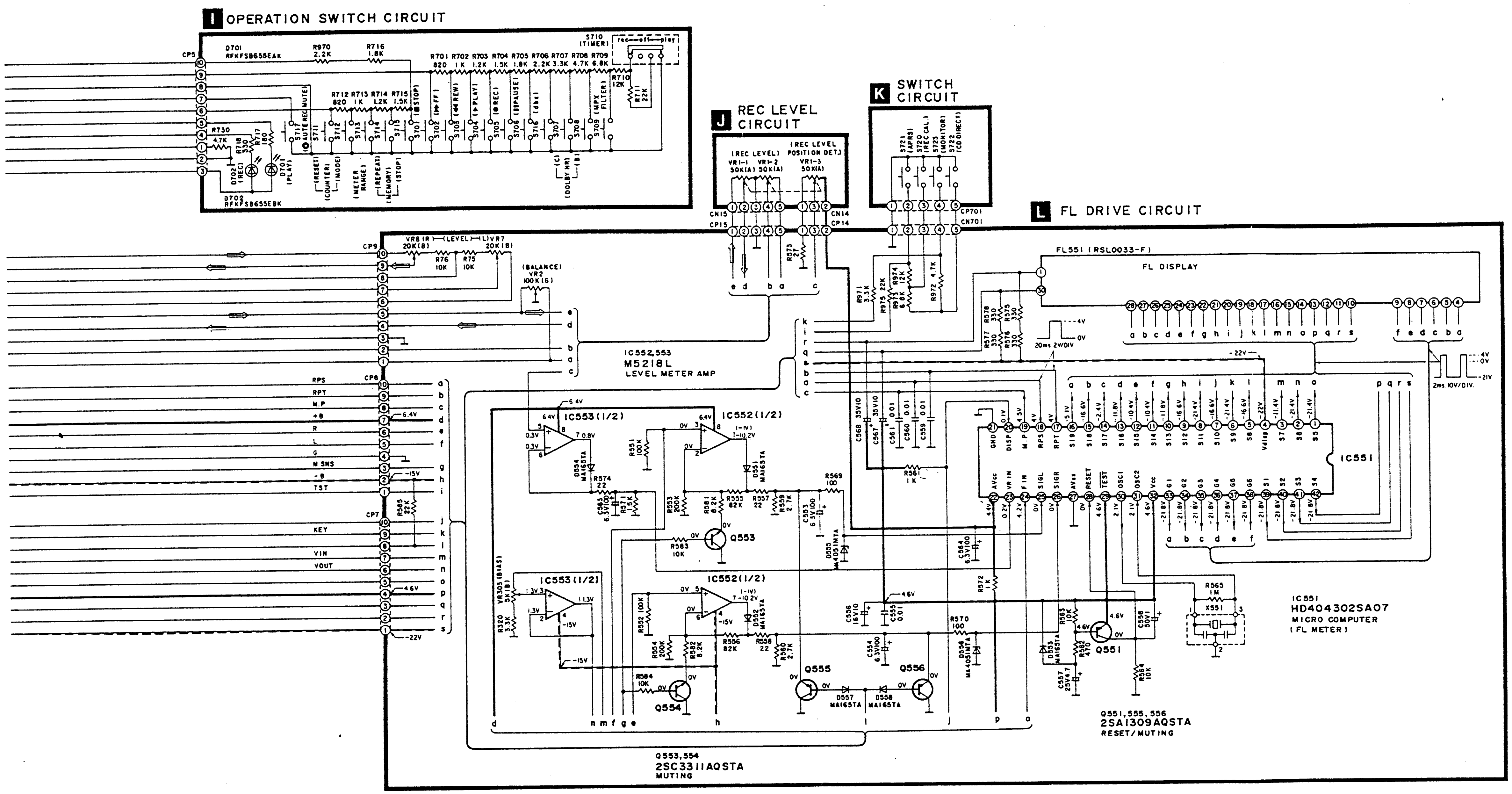


18
19
20
21
22
23
24
25
26
D REC AMP CIRCUIT
Notes:
1. No mark---For (E, EB, EG, GC, GN) areas.
2( ) ---For (PP) area.
HX-PRO ADJ.(Rch) TEST POINT
HX-PRO ADJ.(Lch) TEST POINT
IC301 UPC1297CA DOLBY HX PRO
OVERALL FREQUEYCY RESPONSE ADJ.(Rch)
OVERALL FREQUENCY RESPONSE ADJ.(Lch)
RECORD HEAD
ERASE HEAD
AC BIAS TRAP ADJ.(Rch) TEST POINT
AC BIAS TRAP ADJ.(Lch) TEST POINT
AC BIAS TRAP ADJ.(Lch)
AC BIAS TRAP ADJ.(Rch)
HX-PRO ADJ.(Lch)
HX-PRO ADJ. (Rch)
Q301, 302 2SC3311AQSTA BIAS OSC
Q303 2SD592AQRSTA BIAS OSC CONT.
ERASE CURRENT ADJ. TEST POINT
Q37 2SD1450RSTA SWITCHING (REC:OFF)
Q31, 33 2SA1309AQSTA REC AMP
Q29, 35 2SC3311AQSTA REC AMP
dbx TIMING ADJ. TEST POINT
dbx TIMING ADJ.
Q951 DTA114ESTP SWITCHING(REC:OFF)
Q25~28 2SC3311AQSTA REC EQ AMP
Q30, 36 2SC3311AQSTA REC AMP
Q38 2SD1450RSTA SWITCHING(REC:OFF)
Q22, 34 2SA1309AQSTA REC AMP
IC10 M5218L REC AMP
OVERALL GAIN ADJ.(Rch)
OVERALL GAIN ADJ.(Lch)
Q19, 20 2SD1450RSTA MUTING
Q601 2SD2037EFTA REGULATOR
Q603, 622 2SA1309AQSTA STABILIZER
Q21~24 2SA1309AQSTA REC EQ AMP
Q604 2SC3311AQSTA STABILIZER
Q602 2SB1357EFTA REGULATOR
Q623 2SD592AQRSTA POWER SUPPLY
Q304 2SB1030RSTA BIAS ON/OFF
ERASE CURRENT ADJ.
Q934, 942 DTA114ESTP SYSTEM CONT.
Q908 DTA114ESTP SWITCHING
IC904, 905 M5218L TAPE END DET.
Q912, 915 DTA114ESTP SOLENOID DRIVE
E MECHANISM CIRC

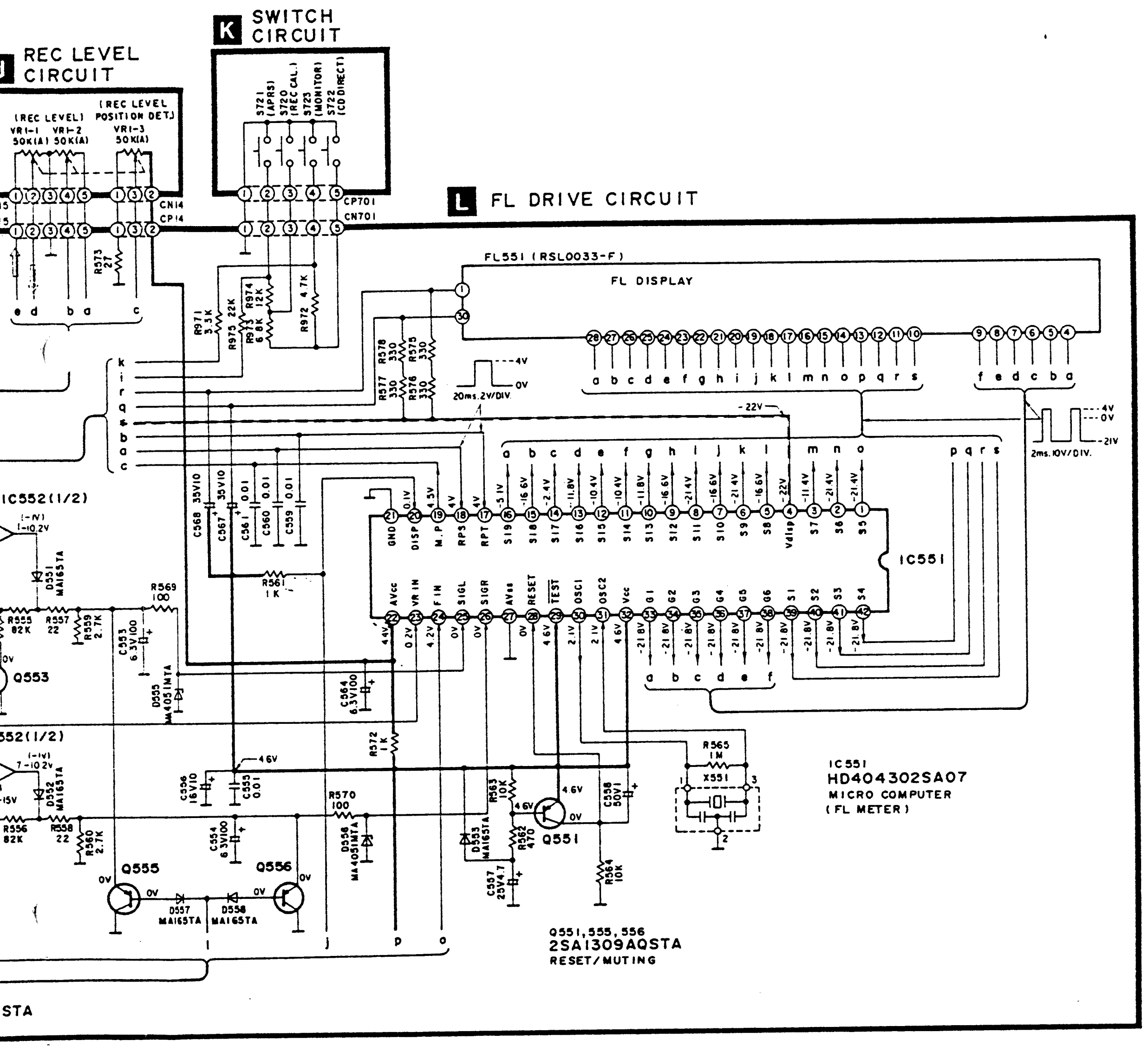


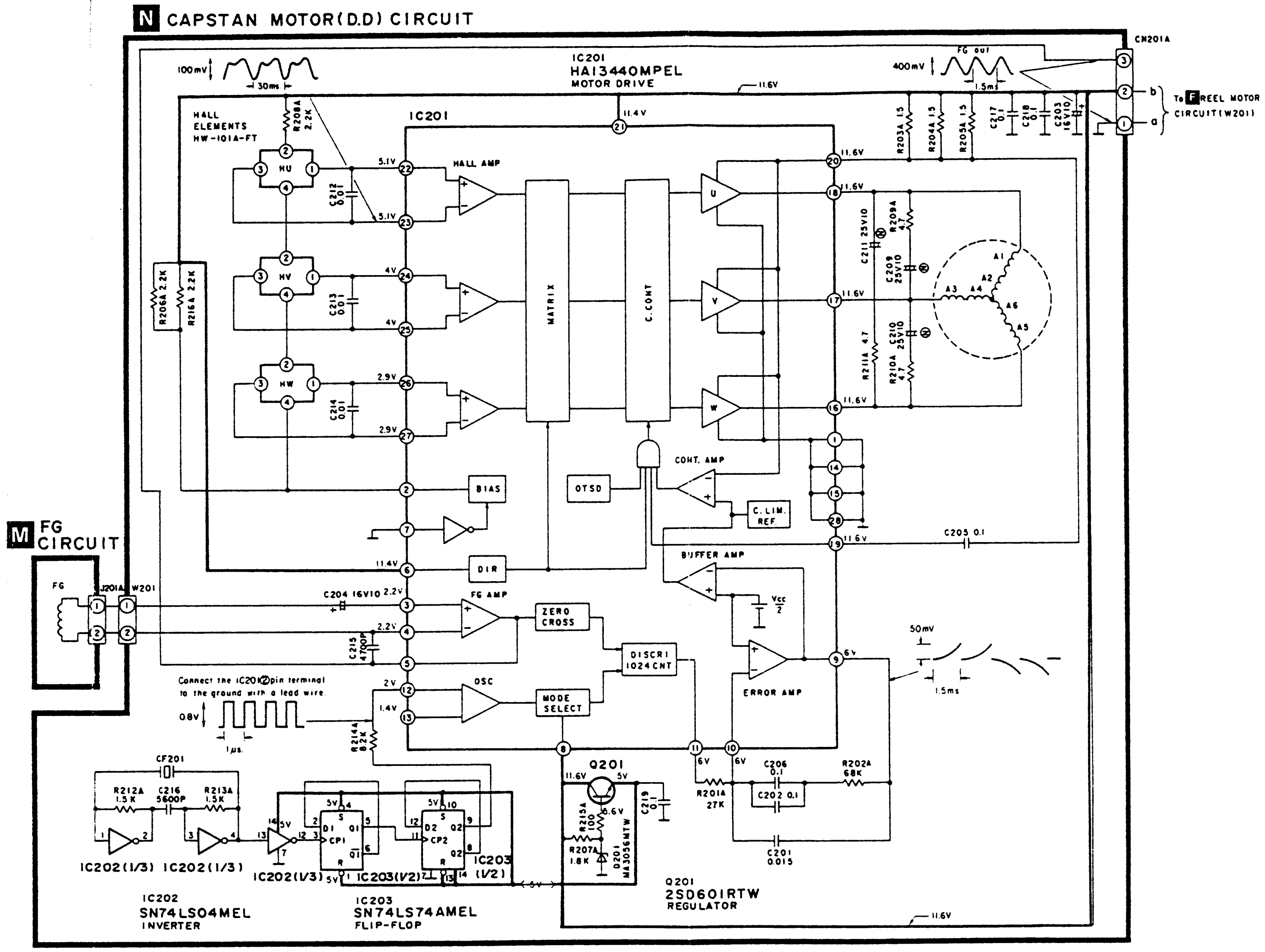
IC901
MB88511-250N
MICRO COMPUTER (MECHANISM)
Q946
2SC3311AQSTA
SYSTEM CONT.
Q927, 928
DTC144ESTP
SYSTEM CONT.
Q935
2SA1309AQSTA
SYSTEM CONT.
Q922~926
DTA144ESTP
SYSTEM CONT.
Q929~931,933,953
DTC114ESTP
SYSTEM CONT.
Q919
DTA114ESTP
SYSTEM CONT.
Q954
DTA114ESTP
SYSTEM CONT.
Q932
2SC3311AQSTA
RESET
Q920,921
DTC114ESTP
SYSTEM CONT.
Q939~941
DTA114ESTP
SYSTEM CONT.
Q906,907
2SK381BCDTA
TAPE END DET.
Q612,613
2SD592AQRSTA
POWER SUPPLY
Q620,621···(EB,GN) areas
2SC3311AQSTA
STABILIZER
Q902
DTC114ESTP
SWITCHING
Q625···(EB,GN) areas
DTC114ESTP
STABILIZER
Q936
DTA114ESTP
RELAY DRIVE
Q606,609
2SB621ARSTA
REGULATOR
Q608
2SD592AQRSTA
REGULATOR
Q610,611,624
2SD2037EFTA
REGULATOR
IC903
BA6218
EJECT MOTOR CONTROL
IC902
BA6218
REEL MOTOR CONTROL
Q913,916
DTC114ESTP
SOLENOID DRIVE
Q905,909
DTC114ESTP
SOLENOID HOLD ON/OFF
Q911,914,917
2SB1030RSTA
SOLENOID DRIVE
Q904,910
2SC3311AQSTA
SWITCHING
Q901
2SB621ARSTA···(others)
2SB1030RSTA···(EB,GN)
POWER SUPPLY
Q903
2SC3311AQSTA
SWITCHING
IC971,972
GP2S06BC
PHOTO COUPLER
Q607
DTC114ESTP
STABILIZER
Q605
2SC3311AQSTA
STABILIZER
To N CAPSTAN MOTOR (DD CIRCUIT (CN2014))
REEL MOTOR
EJECT MOTOR
AC IN
(120V,60Hz···(PP)
220V,50/60Hz···(E,EG)
240V,50/60Hz···(EB,GN)
110/127/220/240V,
50/60Hz···(GC)
F REEL MOTOR CIRCUIT
G LEAF SWITCH CIRCUIT
H EJECT MOTOR CIRCUIT
SM CIRCUIT

37 38 39 40 41 42 43 44 45



M

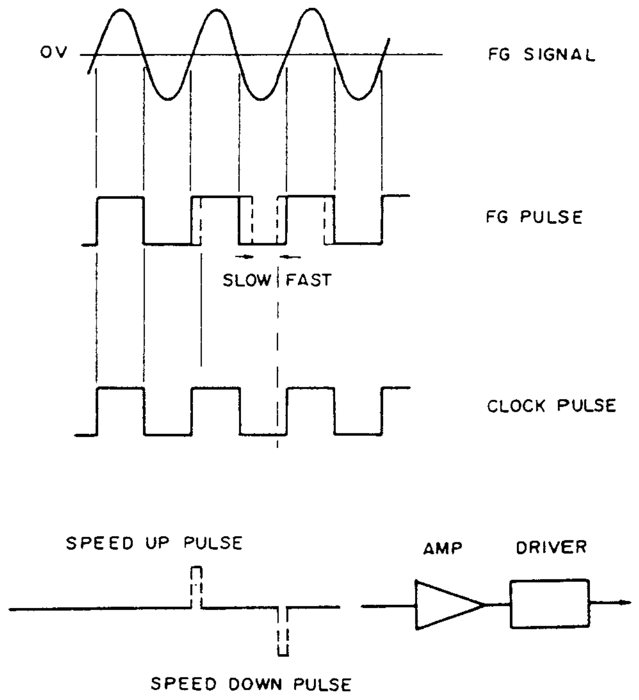

REC LEVEL CIRCUIT
SWITCH CIRCUIT
FL DRIVE CIRCUIT
FL551 (RSL0033-F)
FL DISPLAY
IC552(1/2)
IC552(1/2)
Q553
Q555
Q556
Q551
IC551
IC551
HD404302SA07
MICRO COMPUTER
(FL METER)
Q551,555,556
2SA1309AQSTA
RESET/MUTING


CAPSTAN MOTOR(D.D) CIRCUIT
IC201
HA13440MPEL
MOTOR DRIVE
HALL ELEMENTS
HW-101A-FT
HALL AMP
MATRIX
C.CONT
BIAS
OTSD
CONT. AMP
C.LIM. REF
DIR
BUFFER AMP
FG AMP
ZERO CROSS
DISCRI 1024 CNT
OSC
MODE SELECT
ERROR AMP
FG CIRCUIT
Connect the IC201 ㉒pin terminal to the ground with a lead wire
To REEL MOTOR CIRCUIT(W201)
IC202
SN74LS04MEL
INVERTER
IC203
SN74LS74AMEL
FLIP-FLOP
Q201
2SD601RTW
REGULATOR

■TROUBLESHOOTING OF DIRECT DRIVE MOTOR

• OUTLINE OF THE DIRECT DRIVE MOTOR SYSTEM

The capstan motor is actuated by the DD motor digital servo system. The FG pulse is generated after the detection of the zero crosspoint, and the reference signal generated from the quartz oscillator is compared with this FG pulse. From this comparison, the accelerated and reduced speed pulses are generated, causing the driving coil to function.

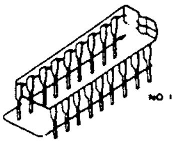


• TROUBLESHOOTING OF DIRECT DRIVE MOTOR

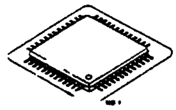
Problem	Possible Cause	Check Points
1. The motor does not rotate.	1. No power supply (+12V) 2. The Hall element has failed (Current does not flow). 3. The ceramic (or crystal) does not oscillate.	• Check the voltage applied to the connector. • Check the DC potential on IC201 pins ㉒~㉗. *Check the waveform of IC201 pin ⑫.
2. The motor does not rotate properly. (When pressed, it stops at certain angles. Sometimes it does not rotate even if power is ON.)	1. The coil is broken or not properly soldered. 2. Output of the Hall element is not proper.	*Check the conductance of the coil. If normal, the resistances between IC201 pins ⑯~⑰, ⑰~⑱, ⑯~⑱, will reach 20ohms. • Check the waveform of IC201 pins ㉒~㉗.
3. The motor is out of control.	1. The FG coil is broken.	• Check the waveform of IC pin ⑤. • Check if the FG coil is broken.
4. Abnormal wow	1. Same as those described for problem 2.	

Note: Check the points marked with an asterisk (*) by removing the DD motor control P.C.B. and then connecting IC201 pin ② to GND with a lead wire. (After the DD motor control P.C.B. is removed, current will start flowing through the coil, heating the IC.)

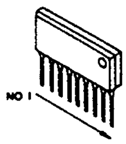
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



MN4066B	14 Pin
UPC1297CA	18 Pin
AN6294NK	28 Pin
CX20187	42 Pin
HD404302SA07	42 Pin
MB88511-250N	42 Pin

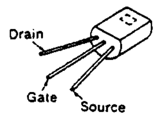


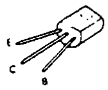
HA13440MPEL	28 Pin



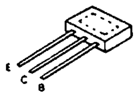
M5238L	8 Pin
M5219L	8 Pin
M5218L	8 Pin
BA6218	9 Pin

2SK381BCDTA
2SK170BLV



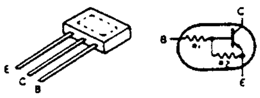


2SB621ARSTA
2SD592AQRSTA

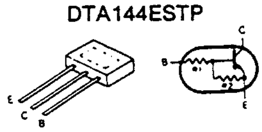


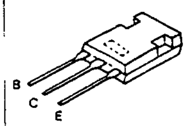
2SA1309AQSTA
2SC3311AQSTA
2SD1450RSTA
2SB1030RSTTA

DTC114ESTP
DTC144ESTP

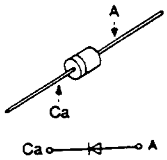


DTA114ESTP
DTA144ESTP

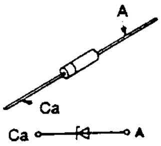




2SB1357EFTA
2SD2037EFTA

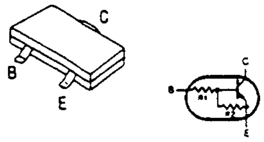


MA165TA
1SR35200TB
1SS133

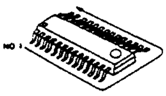


MA4051MTA
MA4062LTA
MA4075MTA
MA4082MTA
MA4150MTA
MA4091MTA
MA4120MTA
MA4220
MA4330MTA

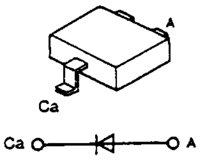
2SD601RTW



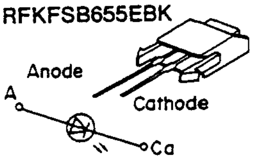
SN74LS04MEL	14 Pin
SN74LS74AMEL	14 Pin



MA3056MTW

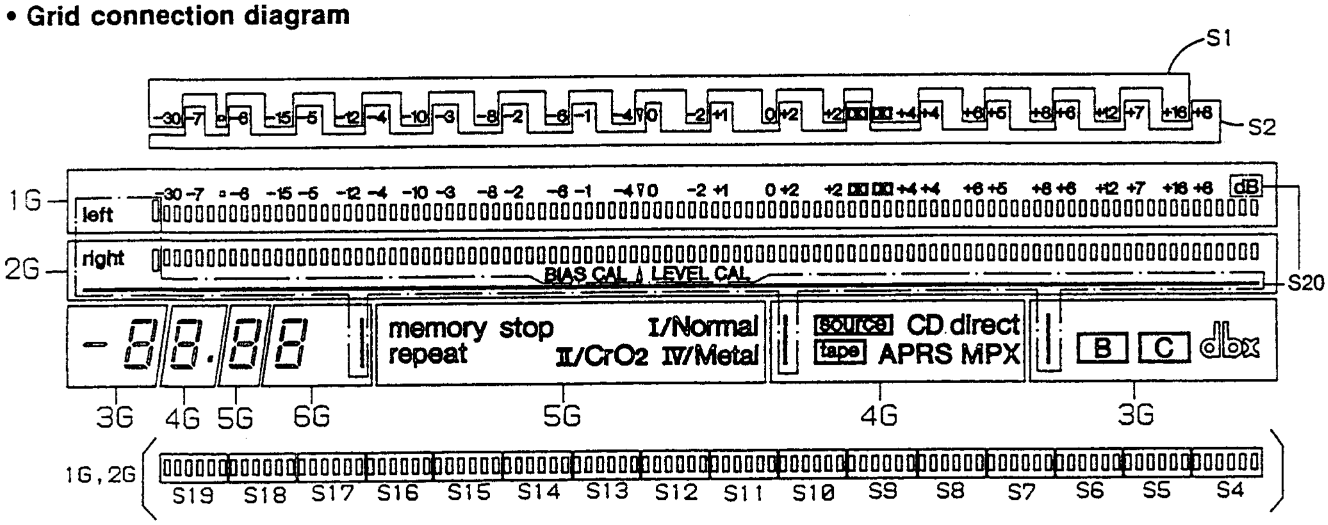


RFKFSB655EAK
RFKFSB655EBK



■ INTERNAL CONNECTION OF FL

• **Grid connection diagram**



• **Anode connection table**

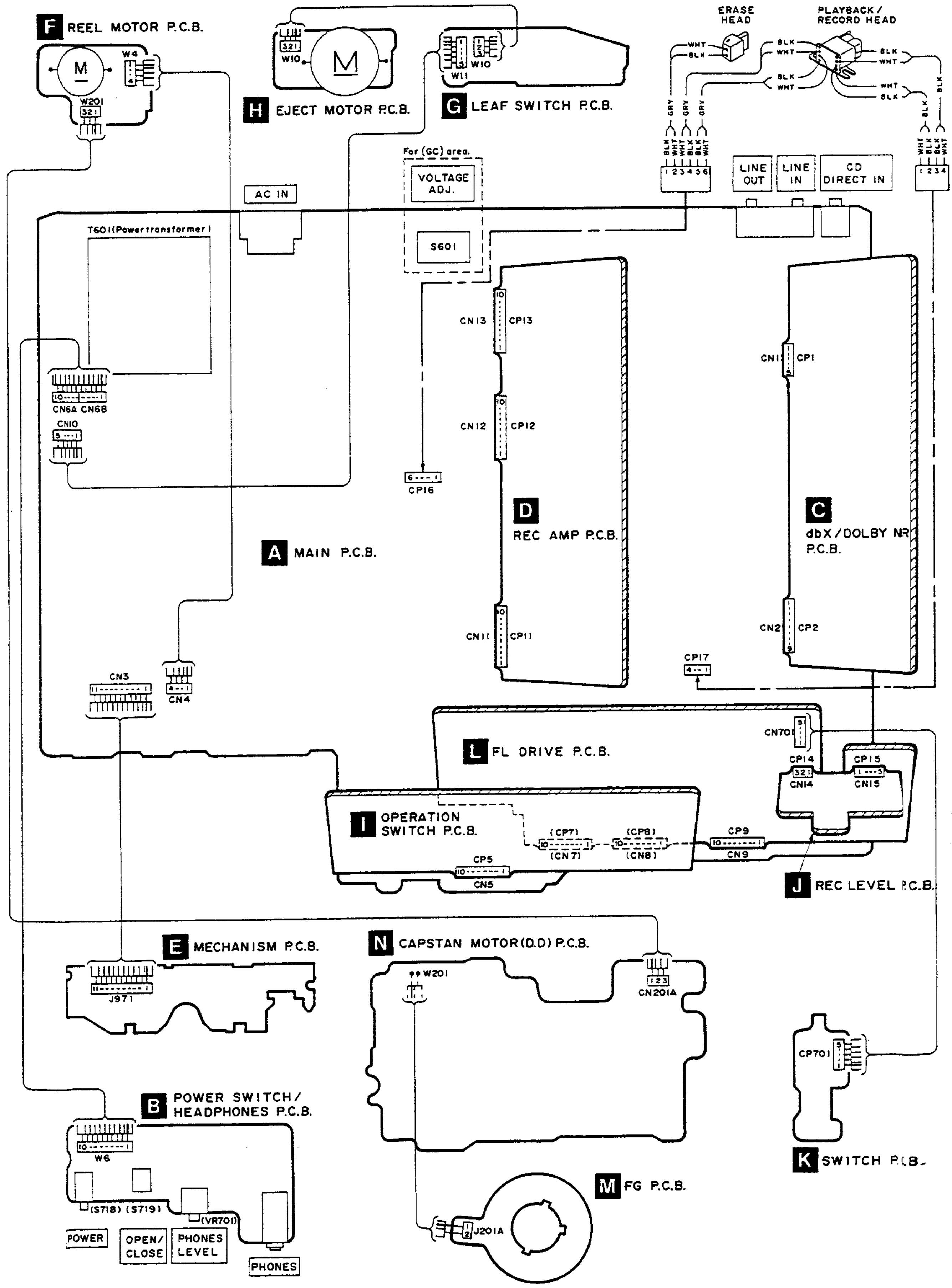
	1G	2G	3G	4G	5G	6G
S1	S1	LEVEL CAL	-	APRS	-	-
S2	S2	BIAS CAL	-	-	-	-
S3	▼	▲	-	-	-	-
S4	IIIIII	IIIIII	-	-	-	-
S5	IIIIII	IIIIII	-	-	-	-
S6	IIIIII	IIIIII	-	-	memory	-
S7	IIIIII	IIIIII	-	-	repeat	-
S8	IIIIII	IIIIII	-	tape	stop	-
S9	IIIIII	IIIIII	B	source	-	-
S10	IIIIII	IIIIII	C	CD direct	I /Normal	-
S11	IIIIII	IIIIII	dbx	MPX	II / CrO_2	-
S12	IIIIII	IIIIII	—	.	IV/Metal	-
S13	IIIIII	IIIIII	a	a	a	a
S14	IIIIII	IIIIII	b	b	b	b
S15	IIIIII	IIIIII	f	f	f	f
S16	IIIIII	IIIIII	g	g	g	g
S17	IIIIII	IIIIII	c	c	c	c
S18	IIIIII	IIIIII	e	e	e	e
S19	IIIIII	IIIIII	d	d	d	d
S20	left I dB	right I	I	I	-	I

• **Pin connection**

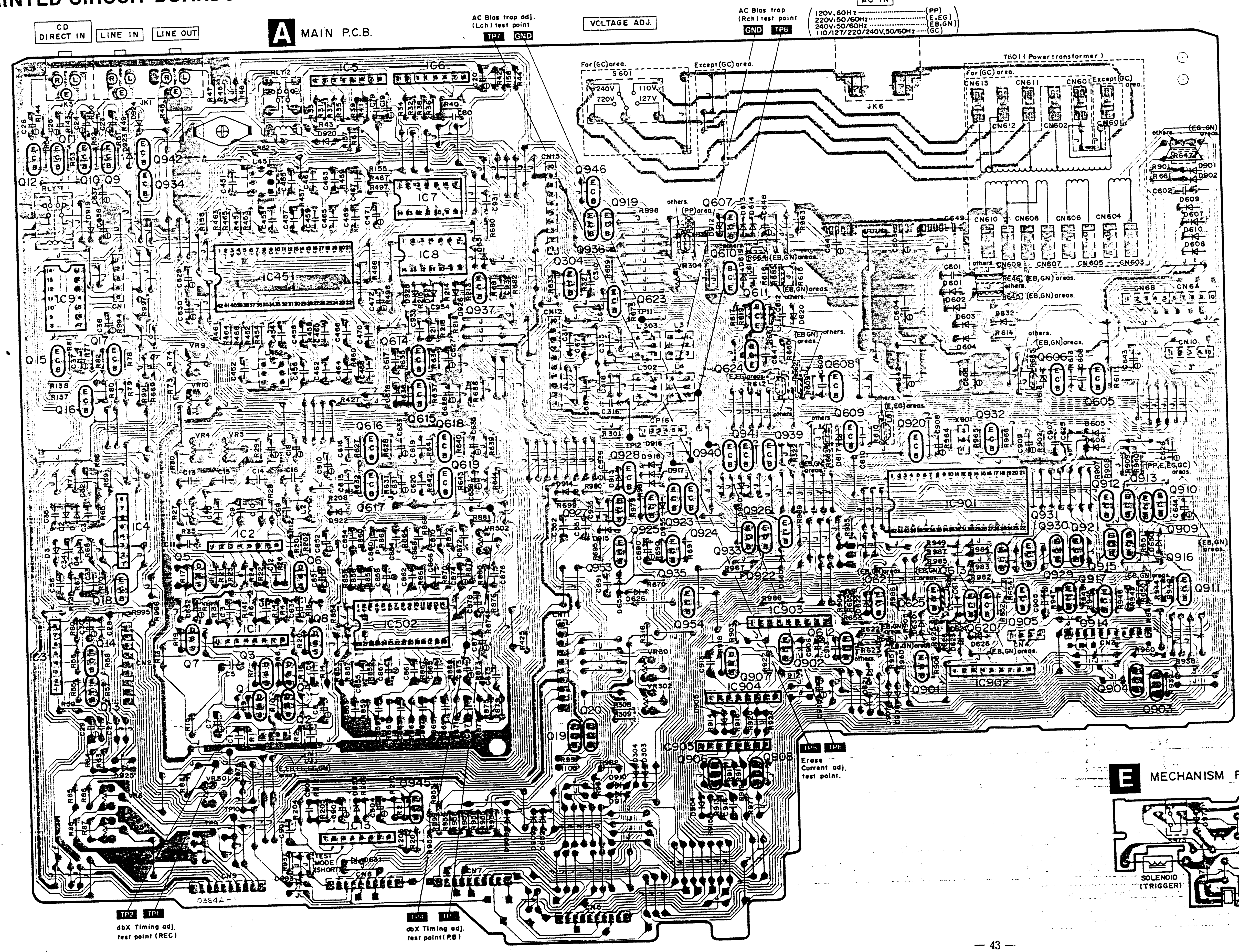
PIN NO.	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	NP	NP	NP	NP	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	NC	6G	5G	4G	3G	2G	1G	S20	NP	NP	NP	NP	NP	NP	NP	F1	F1

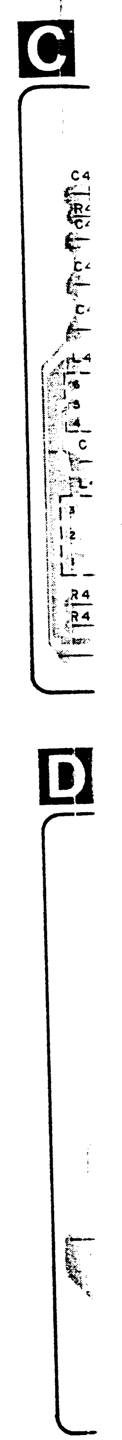
PIN NO.	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
CONNECTION	F2	F2	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP

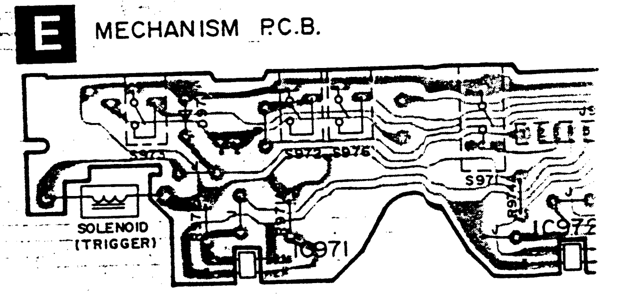
WIRING CONNECTION DIAGRAM



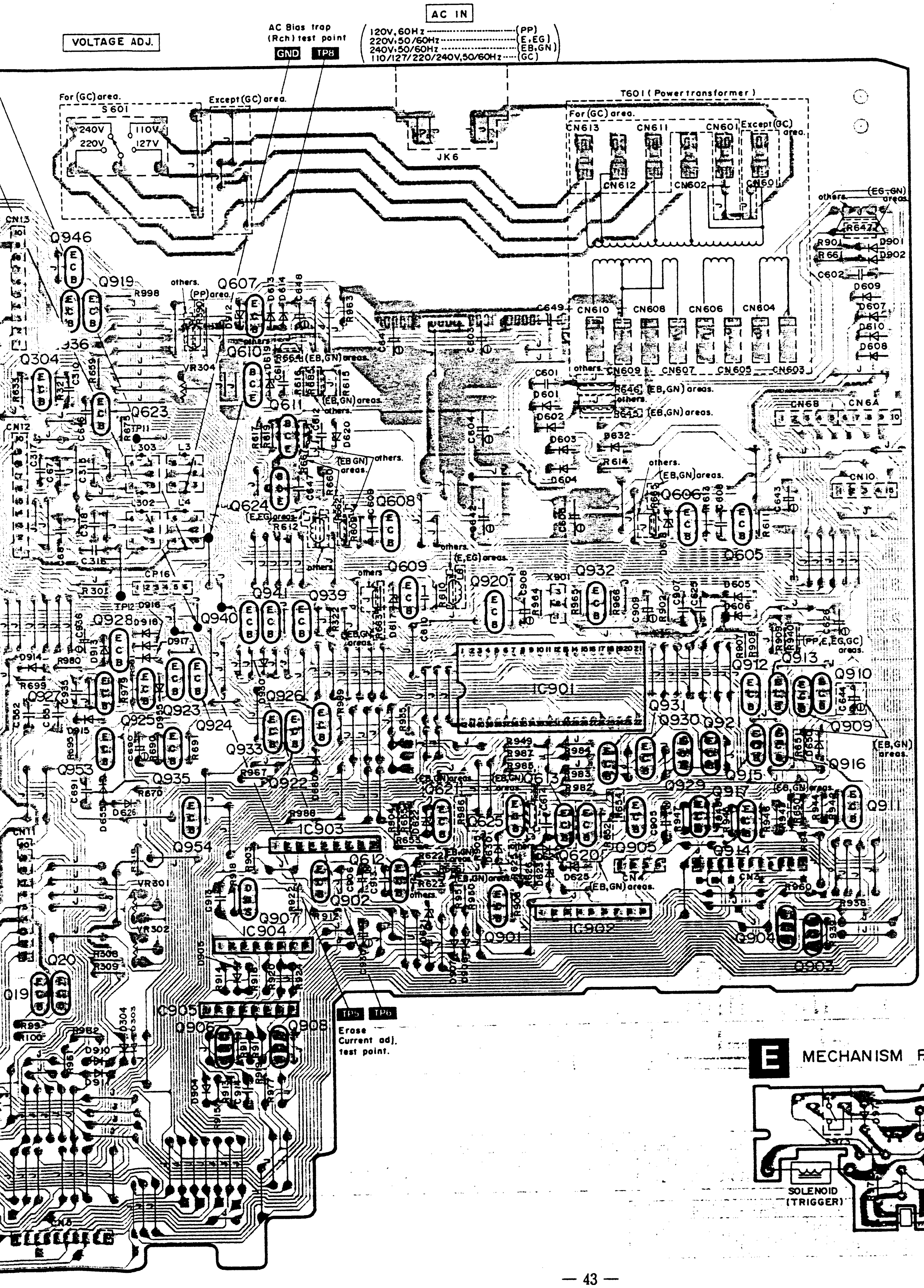
■ PRINTED CIRCUIT BOARDS



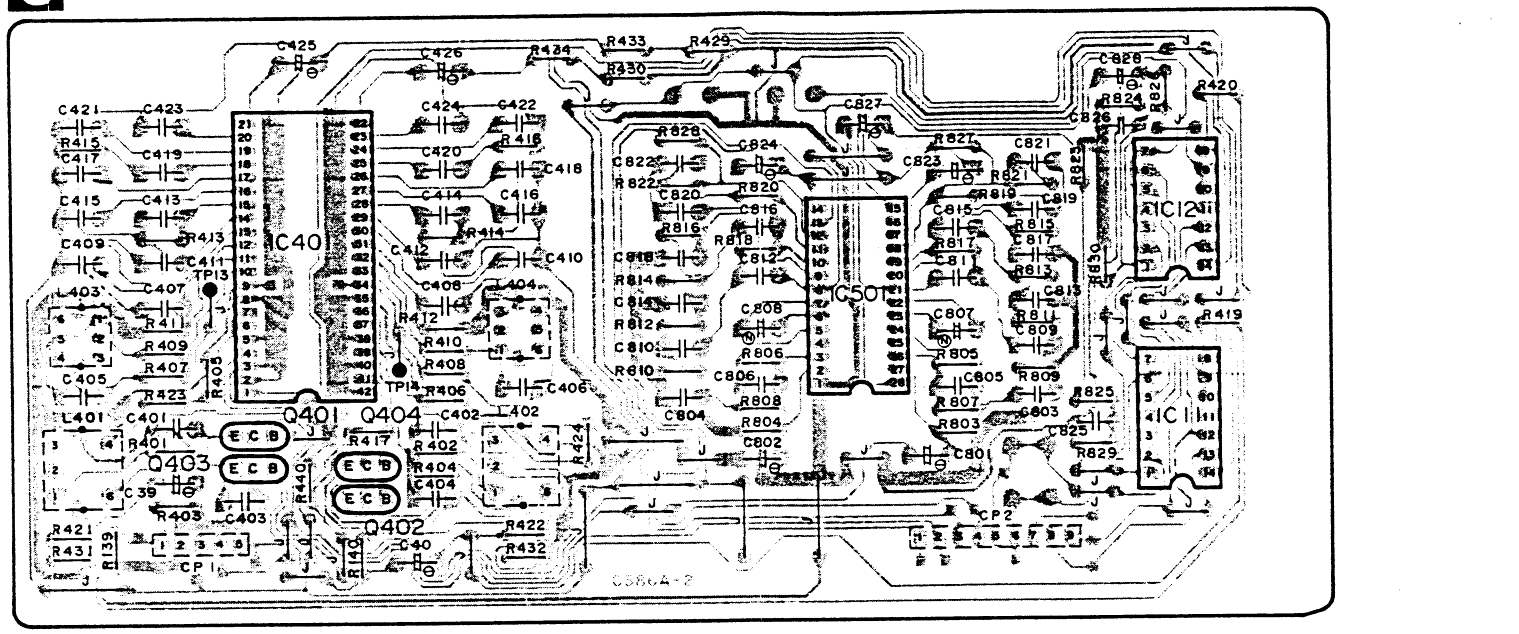




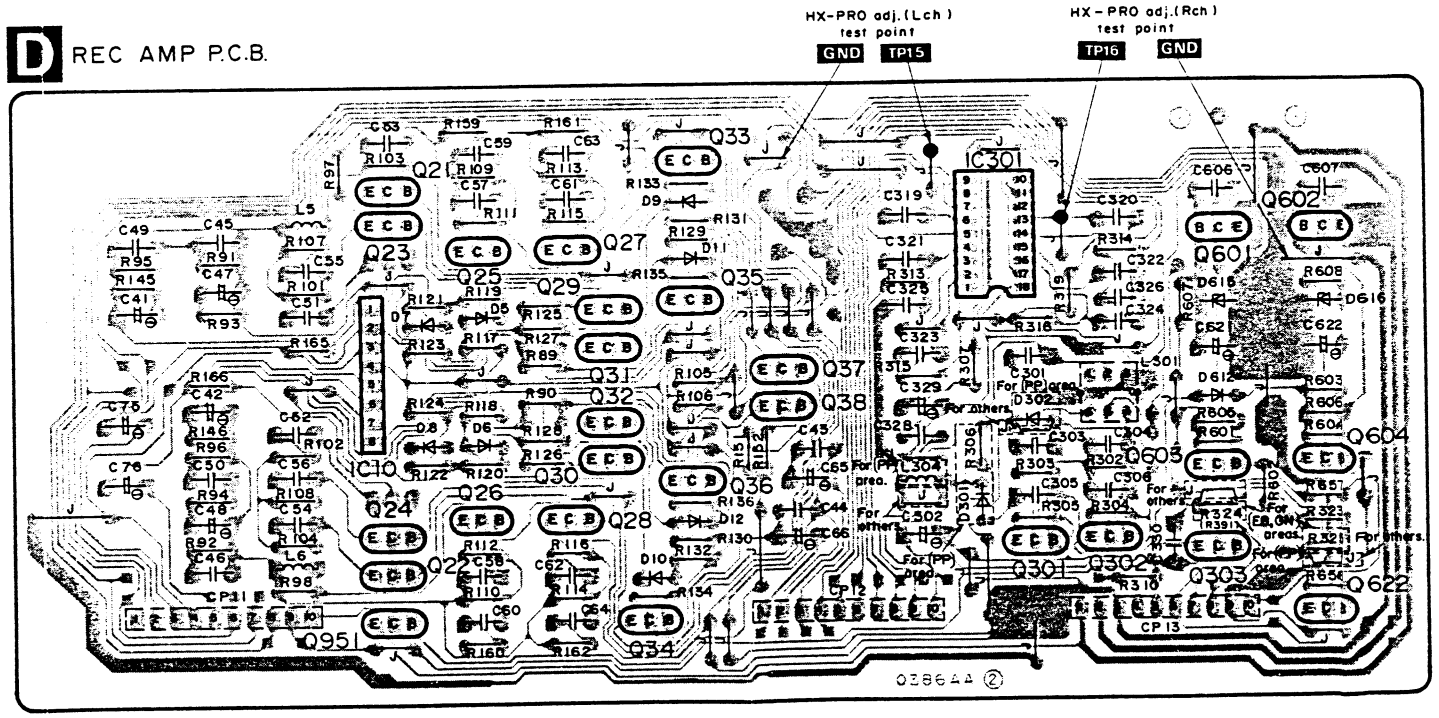
5 6 7 8 9 10 11 12 13 14



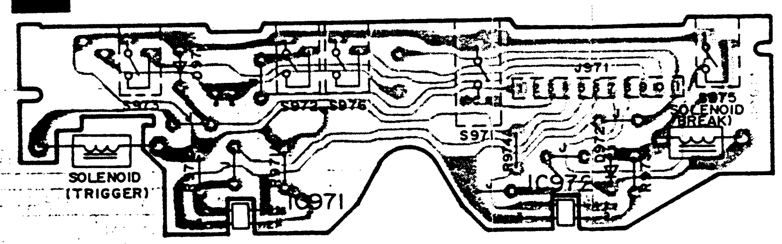
C dbX/DOLBY NR P.C.B.



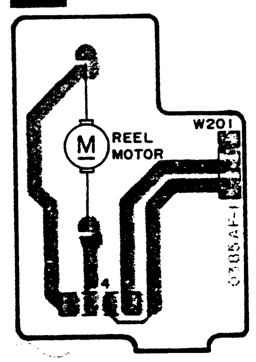
D REC AMP P.C.B.



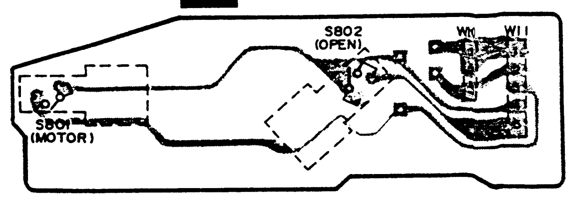
E MECHANISM P.C.B.



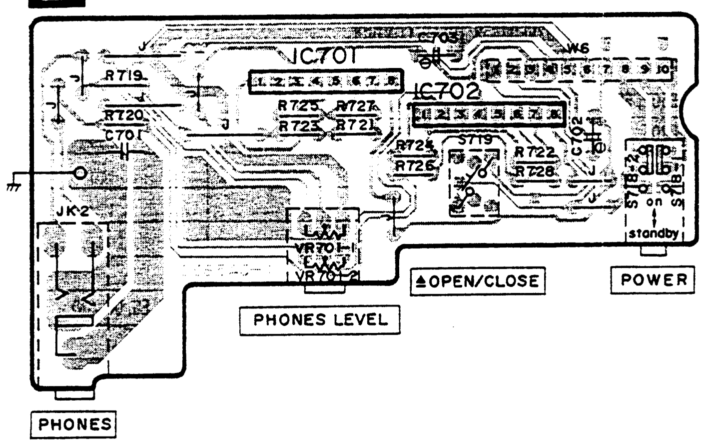
F REEL MOTOR P.C.B.



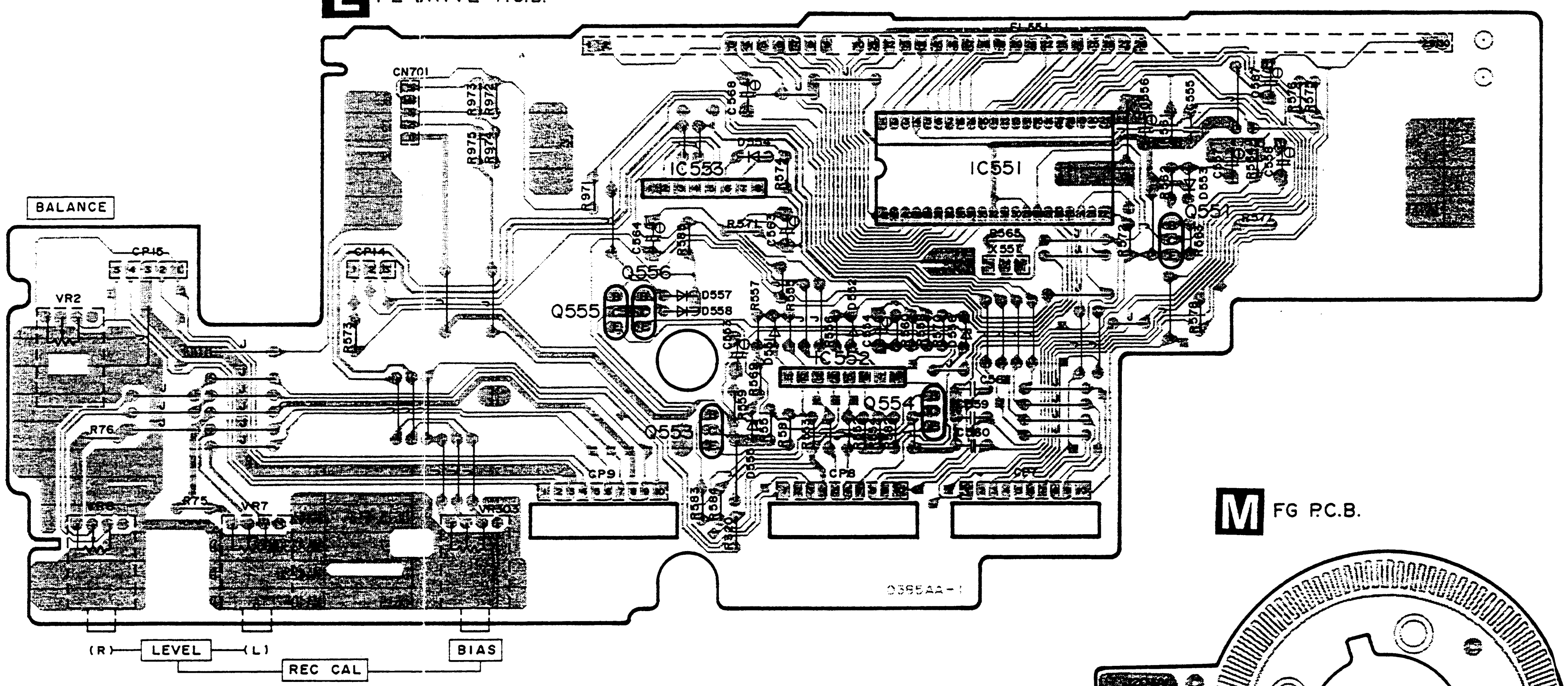
G LEAF SWITCH P.C.B.



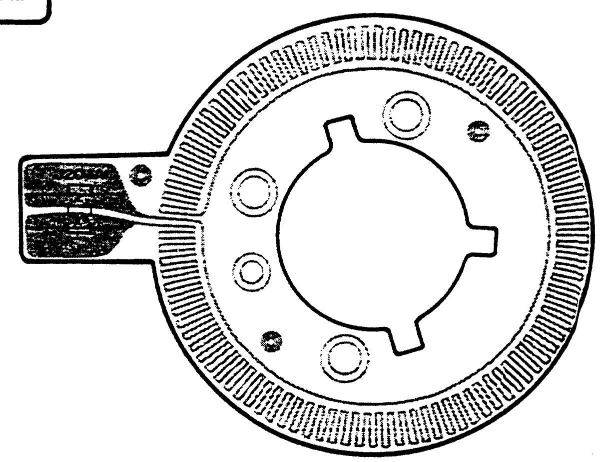
B POWER SWITCH/HEADPHONES P.C.B.



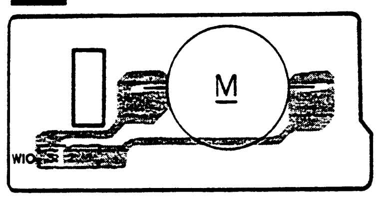
L FL DRIVE P.C.B.



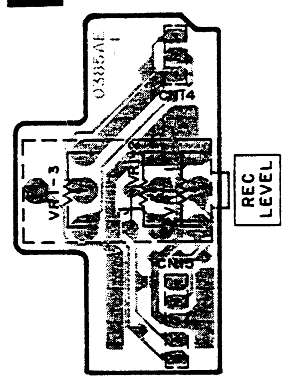
M FG P.C.B.



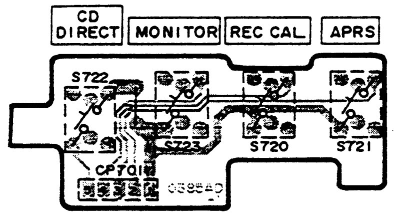
H EJECT MOTOR P.C.B.



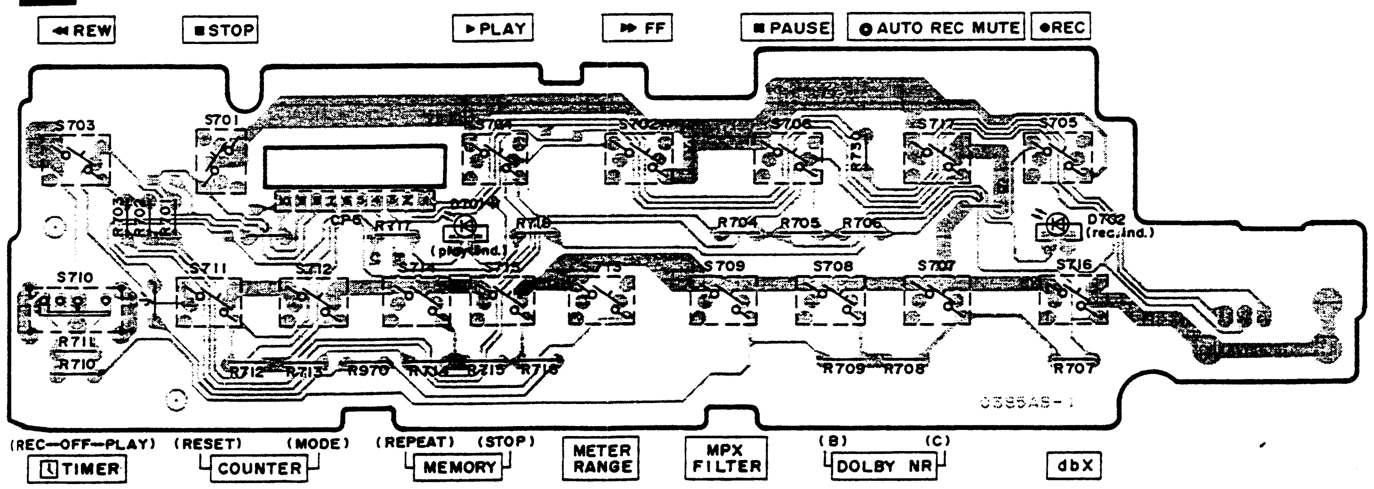
J REC LEVEL P.C.B.



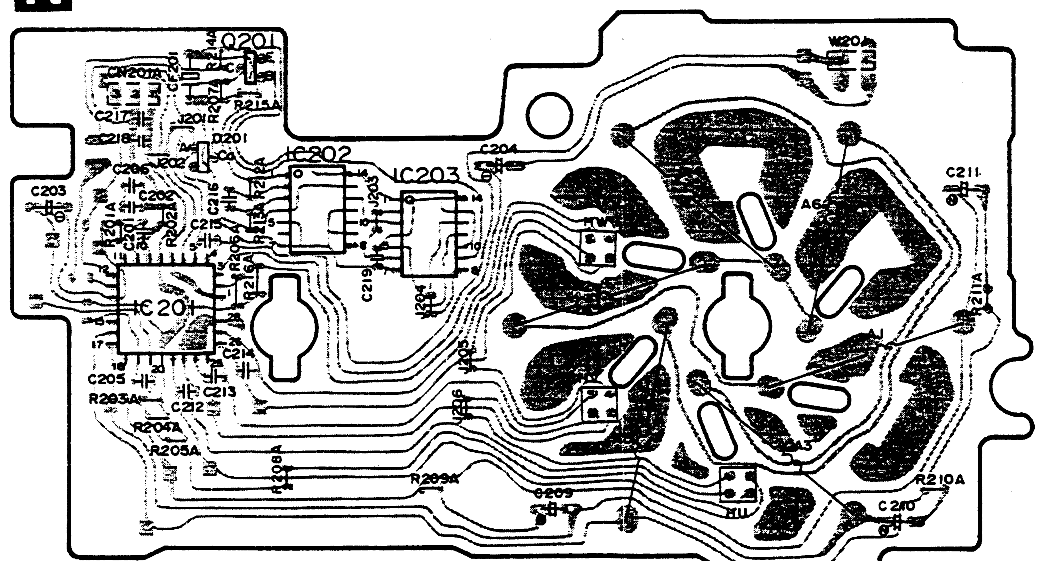
K SWITCH P.C.B.



I OPERATION SWITCH P.C.B.



N CAPSTAN MOTOR (D.D) P.C.B.



■ REPLACEMENT PARTS LIST

Notes : • Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
• The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	M5219L	PLAYBACK EQUALIZER AMP	
IC2	M5219L	PLAYBACK CORRECT PHASE	
IC3	M5238L	INPUT SELECTOR	
IC4-6	M5218L	LINE OUT AMP	
IC7-9	MN4066B	SELECTOR	
IC10	M5218L	REC AMP	
IC11, 12	MN4066B	REC AMP INPUT SELECTOR	
IC13	M5218L	MUSIC SELECTOR AMP	
IC201	HA13440MPEL	MOTOR DRIVE	
IC202	SN74LS04MEL	INVERTER	
IC203	SN74LS74AMEL	FLIP-FLOP	
IC301	UPC1297CA	DOLBY HX PRO	
IC401	CX20187	DOLBY B/C NR	
IC451	CX20187	DOLBY B/C NR	
IC501, 502	AN6294NK	dbx	
IC551	HD404302SA07	MICROCOMPUTER;FL METER	
IC552, 553	M5218L	METER BUFFER AMP	
IC701, 702	M5218L	H.P.:Class AA AMP	
IC901	MB88511-250N	MICROCOMPUTER;MECHANICAL	
IC902, 903	BA6218	MOTOR CONTROL	
IC904, 905	M5218L	REPEAT	
IC971, 972	GP2S06BC	PHOTO COUPLER	
		TRANSISTOR(S)	
Q1-4	2SK170BLV	TRANSISTOR	
Q5-8	2SK381BCDTA	TRANSISTOR	
Q9, 10	2SC3311AQSTA	TRANSISTOR	
Q11-16	2SA1309AQSTA	TRANSISTOR	
Q17	2SC3311AQSTA	TRANSISTOR	
Q18-20	2SD1450RSTA	TRANSISTOR	
Q21-24	2SA1309AQSTA	TRANSISTOR	
Q25-30	2SC3311AQSTA	TRANSISTOR	
Q31-34	2SA1309AQSTA	TRANSISTOR	
Q35, 36	2SC3311AQSTA	TRANSISTOR	
Q37, 38	2SD1450RSTA	TRANSISTOR	
Q201	2SD601RTW	TRANSISTOR	
Q301, 302	2SC3311AQSTA	TRANSISTOR	
Q303	2SD592AQRSTA	TRANSISTOR	
Q304	2SB1030RSTTA	TRANSISTOR	
Q401-404	2SD1450RSTA	TRANSISTOR	
Q551	2SA1309AQSTA	TRANSISTOR	
Q553, 554	2SC3311AQSTA	TRANSISTOR	
Q555, 556	2SA1309AQSTA	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q601	2SD2037EFTA	TRANSISTOR	
Q602	2SB1357EFTA	TRANSISTOR	
Q603	2SA1309AQSTA	TRANSISTOR	
Q604, 605	2SC3311AQSTA	TRANSISTOR	
Q606	2SB621ARSTA	TRANSISTOR	
Q607	DTC114ESTP	TRANSISTOR	
Q608	2SD592AQRSTA	TRANSISTOR	
Q609	2SB621ARSTA	TRANSISTOR	
Q610, 611	2SD2037EFTA	TRANSISTOR	
Q612-614	2SD592AQRSTA	TRANSISTOR	
Q615	2SB621ARSTA	TRANSISTOR	
Q616	2SD592AQRSTA	TRANSISTOR	
Q617	2SB621ARSTA	TRANSISTOR	
Q618	2SD592AQRSTA	TRANSISTOR	
Q619	2SB621ARSTA	TRANSISTOR	
Q620, 621	2SC3311AQSTA	TRANSISTOR	(EB, GN)
Q622	2SA1309AQSTA	TRANSISTOR	
Q623	2SD592AQRSTA	TRANSISTOR	
Q624	2SD2037EFTA	TRANSISTOR	
Q625	DTC114ESTP	TRANSISTOR	(EB, GN)
Q901	2SB621ARSTA	TRANSISTOR	(PP, E, EG, GC)
Q901	2SB1030RSTTA	TRANSISTOR	(EB, GN)
Q902	DTC114ESTP	TRANSISTOR	
Q903, 904	2SC3311AQSTA	TRANSISTOR	
Q905	DTC114ESTP	TRANSISTOR	
Q906, 907	2SK381BCDTA	TRANSISTOR	
Q908	DTA114ESTP	TRANSISTOR	
Q909	DTC114ESTP	TRANSISTOR	
Q910	2SC3311AQSTA	TRANSISTOR	
Q911	2SB1030RSTTA	TRANSISTOR	
Q912	DTA114ESTP	TRANSISTOR	
Q913	DTC114ESTP	TRANSISTOR	
Q914	2SB1030RSTTA	TRANSISTOR	
Q915	DTA114ESTP	TRANSISTOR	
Q916	DTC114ESTP	TRANSISTOR	
Q917	2SB1030RSTTA	TRANSISTOR	
Q919	DTA114ESTP	TRANSISTOR	
Q920, 921	DTC114ESTP	TRANSISTOR	
Q922-926	DTA144ESTP	TRANSISTOR	
Q927, 928	DTC144ESTP	TRANSISTOR	
Q929-931	DTC114ESTP	TRANSISTOR	
Q932	2SC3311AQSTA	TRANSISTOR	
Q933	DTC114ESTP	TRANSISTOR	
Q934	DTA114ESTP	TRANSISTOR	
Q935	2SA1309AQSTA	TRANSISTOR	
Q936	DTA114ESTP	TRANSISTOR	
Q937	2SD1450RSTA	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q939-942	DTA114ESTP	TRANSISTOR	
Q945, 946	2SC3311AQSTA	TRANSISTOR	
Q951	DTA114ESTP	TRANSISTOR	
Q953	DTC114ESTP	TRANSISTOR	
Q954	DTA114ESTP	TRANSISTOR	
		DIODE(S)	
D1-12	MA165TA	DIODE	
D201	MA3056MTW	DIODE	
D301, 302	MA165TA	DIODE	(PP)
D303, 304	MA165TA	DIODE	
D551-554	MA165TA	DIODE	
D555, 556	MA4051MTA	DIODE	
D557, 558	MA165TA	DIODE	
D601-610	1SR35200TB	DIODE	⚠
D612-614	MA165TA	DIODE	
D615, 616	MA4150MTA	DIODE	
D617	MA4330MTA	DIODE	
D618	MA4220	DIODE	
D619	MA4062LTA	DIODE	
D620	MA4120MTA	DIODE	
D621	MA4075MTA	DIODE	
D622	MA4082MTA	DIODE	
D623	MA4091MTA	DIODE	
D624	MA165TA	DIODE	
D625	MA4051MTA	DIODE	
D626	MA165TA	DIODE	
D630	MA165TA	DIODE	(EB, GN)
D631	MA4075MTA	DIODE	
D632	1SR35200TB	DIODE	⚠
D650-652	MA165TA	DIODE	
D655	MA165TA	DIODE	
D660	MA165TA	DIODE	
D701	RFKFSB655EAK	L.E.D. ASS'Y	
D702	RFKFSB655EBK	L.E.D. ASS'Y	
D901-911	MA165TA	DIODE	
D912	MA4051MTA	DIODE	
D913-928	MA165TA	DIODE	
D930	MA165TA	DIODE	
D955	MA165TA	DIODE	
D971, 972	1SS133	DIODE	
		VARIABLE RESISTOR(S)	
VR1	EWGU2A029A54	REC LEVEL CONTROL	
VR2	EVJ02SF06G15	BALANCE CONTROL	
VR3, 4	EVNDXAA00B53	PLAYBACK GAIN ADJ.	
VR5, 6	EVNDXAA00B14	OVERALL GAIN ADJ.	
VR7, 8	EVJ02KF04B24	REC CALIBRATION	
VR9, 10	EVNDXAA00B53	CALIBRATION LEVER ADJ.	
VR301, 302	EVNDXAA00B14	OVERALL FREQ. ADJ.	

Ref. No.	Part No.	Part Name & Description	Remarks
VR303	EVJ02VF04B53	BIAS CONTROL	
VR304	EVNDXAA00B14	BIAS CURRENT ADJ.	
VR501, 502	EVNDXAA00B53	dbx TIMING ADJ.	
VR701	EVU57A043A14	HEADPHONES CONTROL	
		COIL(S)	
L1, 2	SLQX272-1YT	COIL	
L3, 4	RLZ0003	COIL	(E, EB, EG, GC, GN)
L3, 4	RLZ0005	COIL	(PP)
L5, 6	SLQX272-1YT	COIL	
L7, 8	ELEPK3R3KA	COIL	(E, EG)
L301	SL09B4-K	COIL	
L302, 303	SL09B1-K	COIL	
L304	RLQZB822KT-D	COIL	(PP)
L401, 402	QLM9Z10K	COIL	
L403, 404	SLM1B12-K	COIL	
L451, 452	SLM1B12-K	COIL	
		TRANSFORMER(S)	
T601	RTP1L4B002-V	POWER TRANSFORMER	(EB, GN) ⚠
T601	RTP1L4C002-V	POWER TRANSFORMER	(PP) ⚠
T601	RTP1L4E002-V	POWER TRANSFORMER	(E, EG) ⚠
T601	RTP1L4E003-V	POWER TRANSFORMER	(GC) ⚠
		OSCILLATOR(S)	
X551	EF0GC4004T4	CERAMIC FILTER(4MHz)	
X901	EF0GC6004T4	CERAMIC FILTER(6MHz)	
		DISPLAY TUBE	
FL551	RSL0033-F	DISPLAY TUBE	
		SWITCH(ES)	
S601	SSR187-1	VOLTAGE SELECTOR	(GC) ⚠
S701	EVQQTG05R	STOP	
S702	EVQQTG05R	F.F.	
S703	EVQQTG05R	REW	
S704	EVQQTG05R	PLAY	
S705	EVQQTG05R	REC	
S706	EVQQTG05R	PAUSE	
S707	EVQQTG05R	DOLBY NR C	
S708	EVQQTG05R	DOLBY NR B	
S709	EVQQTG05R	MPX	
S710	SSS166	TIMER	
S711	EVQQTG05R	COUNTER(RESET)	
S712	EVQQTG05R	COUNTER(MODE)	
S713	EVQQTG05R	METER RANGE	
S714	EVQQTG05R	MEMORY(REPEAT)	

Ref. No.	Part No.	Part Name & Description	Remarks
S715	EVQQTG05R	MEMORY (STOP)	
S716	EVQQTG05R	dbx	
S717	EVQQTG05R	ARM	
S718	SSH1238	POWER	⚠
S719	EVQQTG05R	OPEN/CLOSE	
S720	EVQQTG05R	CALIBRATION SELECTOR	
S721	EVQQTG05R	APRS	
S722	EVQQTG05R	CD DIRECT	
S723	EVQQTG05R	MONITOR	
S801	SSPD18-1	MOTOR	
S802	SSPD18-1	OPEN	
S971	RSH1A89Z	MODE	
S972	RSH1A90Z	HALF	
S973	RSH1A90Z	ATS	
S975	RSH1A90Z	REC INHIBIT	
S976	RSH1A90Z	ATS	
		CONNECTOR (S) AND SOCKET (S)	
CN1	SJS50578JQ	SOCKET (5P)	
CN2	SJS50978JQ	SOCKET (9P)	
CN3	SJSD1105	CONNECTOR (11P)	
CN4	RJS1A1704	CONNECTOR (4P)	
CN5	RJU003K010M1	SOCKET (10P)	
CN6A, 6B	RJS1A1705	CONNECTOR (5P)	
CN7-9	RJU003K010M1	SOCKET (10P)	
CN10	RJS1A1705	CONNECTOR (5P)	
CN11-13	SJS51078JQ	SOCKET (7P)	
CN14	SJT30345JQ	CONNECTOR (3P)	
CN15	SJT30545JQ	CONNECTOR (5P)	
CN201A	RJS3T4ZA	CONNECTOR (3P)	
CN601-610	RJS1A1101	SOCKET (1P)	
CN611-613	RJS1A1101	SOCKET (1P)	(GC)
CN701	SJT30549BB1	CONNECTOR (5P)	
CP1	SJT30545JQ	CONNECTOR (5P)	
CP2	SJT30945JQ	CONNECTOR (9P)	
CP5	RJT003K010M1	CONNECTOR (10P)	
CP7-9	RJT003K010M1	CONNECTOR (10P)	
CP11-13	SJT31045JQ	CONNECTOR (10P)	
CP14	SJS50378JQ	SOCKET (3P)	
CP15	SJS50578JQ	SOCKET (5P)	
CP16	SJTD613	CONNECTOR (6P)	
CP17	SJTD413	CONNECTOR (4P)	
CP701	SJS50581BB	SOCKET (5P)	
		GND PART (S)	
E1, E2	SNE1004-1	GND PLATE	
E3	SUSD165	GND SPRING	
		JACK (S)	

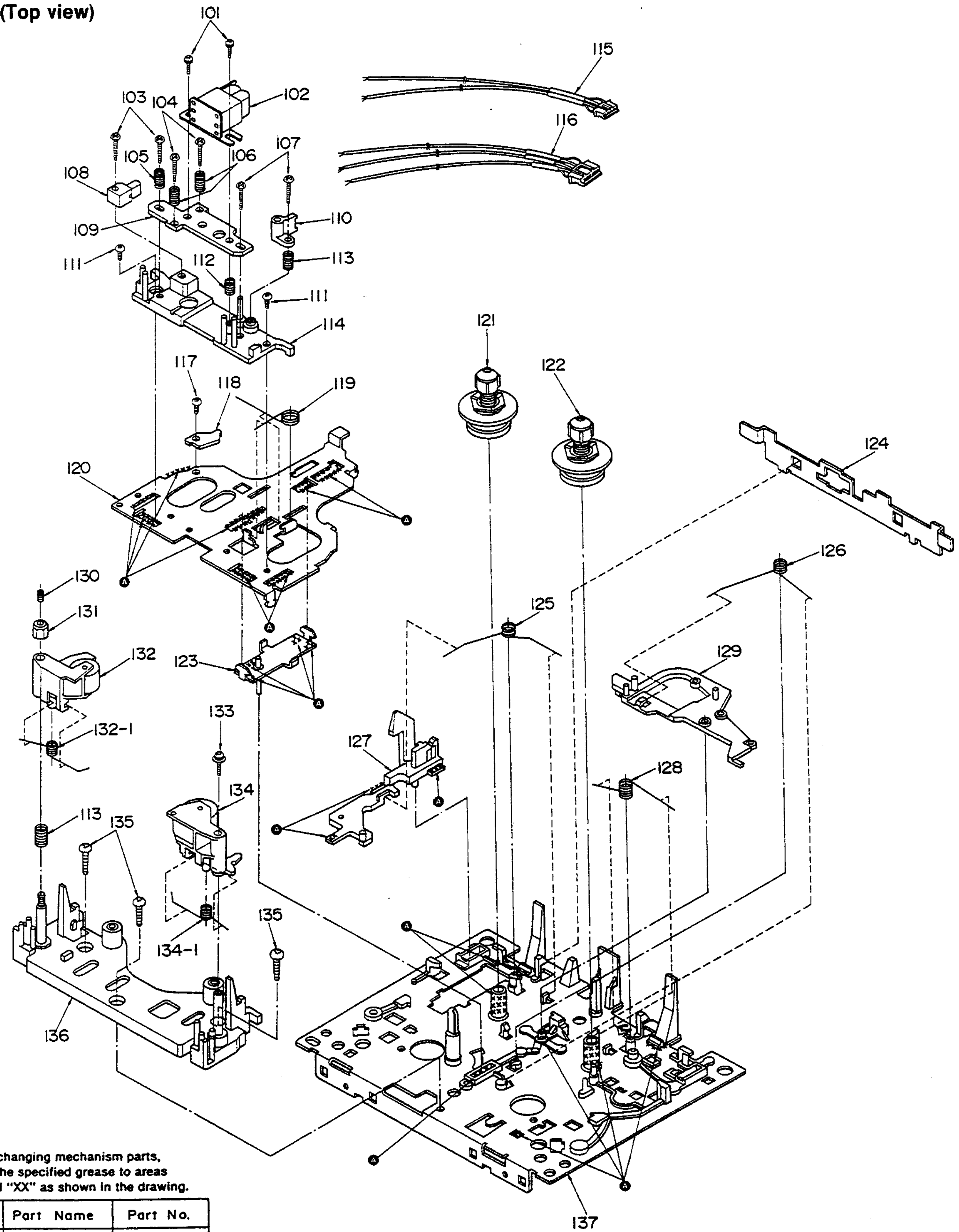
Ref. No.	Part No.	Part Name & Description	Remarks
JK1	SJF3069A	TERMINAL BOARD (4P)	
JK2	SJJD19	JACK, HEADPHONES	
JK3	SJF3068A	TERMINAL BOARD (2P)	
JK6	SJS9236	AC INLET	(E, EB, EG, GC) ⚠
JK6	SJSD16	AC INLET	(PP, GN) ⚠
		RELAY (S)	
RY1, 2	AG80239	RELAY (5V)	
		CERAMIC FILTER (S)	
CF201	RSXA3M75S01	CERAMIC FILTER	

Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST	
101	XYN2+C4	SCREW	
102	RBR4CY004-C	R/P HEAD	(PP)
102	SJH104-1	R/P HEAD	(E, EB, EG, GC, GN)
103	XSN2+10	SCREW	
104	RHD20005	SCREW	
105	RMB0135	SPRING	
106	RMB0137	SPRING	
107	XSN2+8	SCREW	
108	RBR2CY008-A	E HEAD	
109	RMA0271	HEAD PLATE	
110	RMR0249	TAPE GUIDE	
111	XTN2+5F	SCREW	
112	RMB0136	SPRING	
113	RMB0133	SPRING	
114	RXQ0099	HEAD SPACER	
115	REX0094	LEAD WIRE BLOCK	
116	REX0095	LEAD WIRE BLOCK	
117	XTN2+4F	SCREW	
118	RMR0250	F PEACE	
119	RUW139ZA	SPRING	
120	RMA0047A	HEAD BASE	
121	RXR0009	REEL TABLE	
122	RXR0001	REEL TABLE	
123	RXQ0078	MAIN ROD ASS'Y	
124	RUB502Z	LEVER	
125	RME0018-1	SPRING	
126	RME0020	SPRING	
127	RMM0012-2	EJECT ROD(L)	
128	RUW142ZA	SPRING	
129	RXL0007	BRAKE LEVER	
130	XXE26D3	SCREW	
131	RHN26002	NUT, ADJUSTMENT	
132	RXP0026	PINCH ROLLER ARM(S)	
132-1	RMB0134	SPRING	
133	XSN2+W4FZ	SCREW	
134	RXP0004	PINCH ROLLER ARM(F)	
134-1	RUW140ZB	SPRING	
135	XTN26+6F	SCREW	
136	RXQ0098	HOUSING BLOCK UNIT	
137	RMK0097	CHASSIS BLOCK UNIT	
138	MMN-6F4RA88	REEL MOTOR	
139	XTN26+7J	SCREW	
140	XTN26+26F	SCREW	
141	RMA0048A	FLYWHEEL PLATE	
142	XTW2+8S	SCREW	
143	RJS11T7ZA	CONNECTOR(11P), J971	
144	RMA0324	BRACKET	
145	RHW21013	WASHER	
146	RXG0009	GEAR ASS'Y	

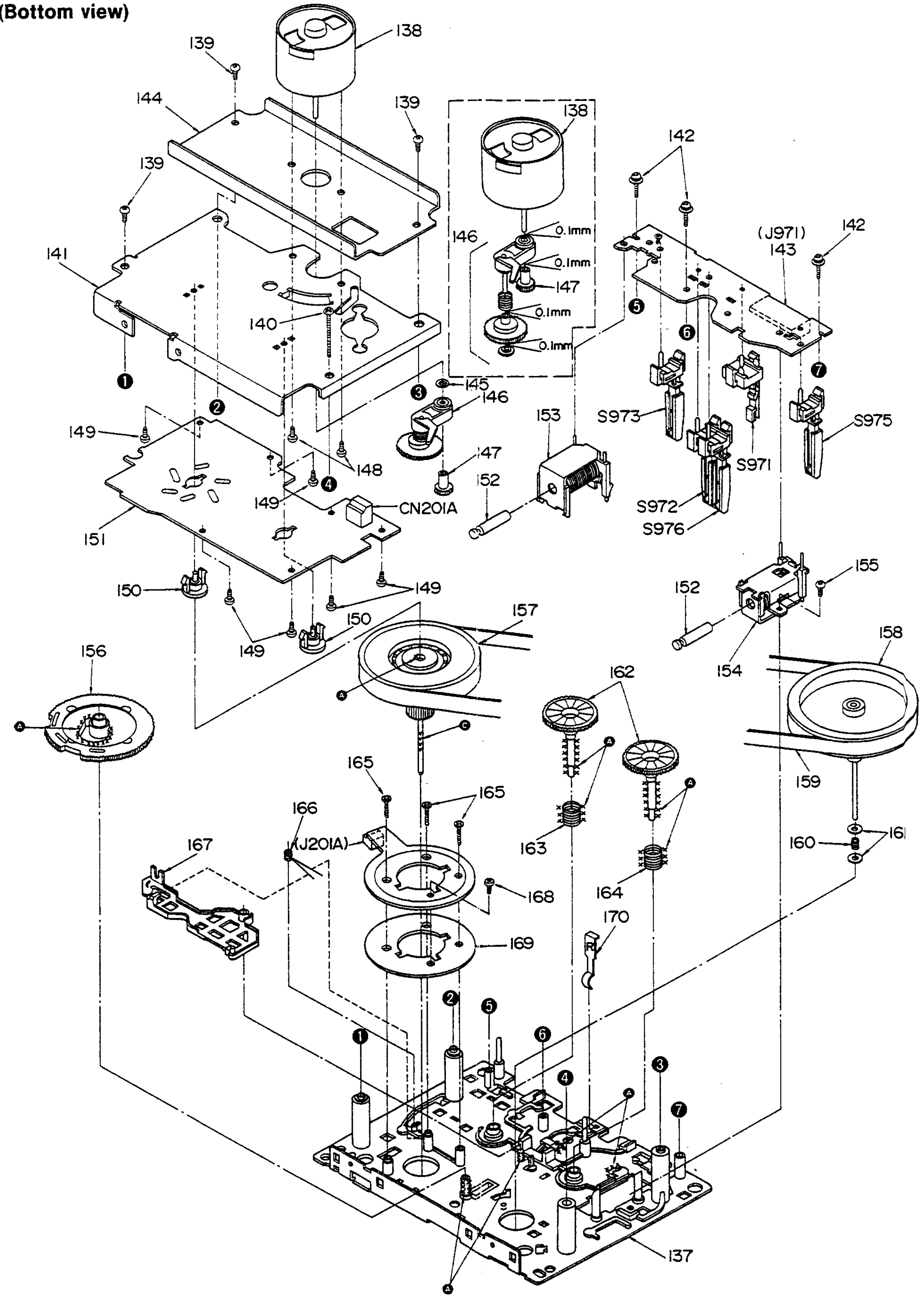
Ref. No.	Part No.	Part Name & Description	Remarks
147	RDG0034	REEL MOTOR GEAR	
148	XSN26+4	SCREW	
149	XTN2+3F	SCREW	
150	RMR0141	THRUST BEARING	
151	REP0268B	STATER P.C.B. ASS'Y	
152	RUB428Z	MOVING IRON CORE	
153	RSJ0003	SOLENOID	
154	RXQ0011	BRAKE SOLENOID	
155	XTN26+4F	SCREW	
156	RDG0030	MAIN GEAR	
157	RXF0018	FLYWHEEL(D)	
158	RXF0013	FLYWHEEL(S)	
159	RDV0012	BELT	
160	RMB0138	SPRING	
161	RHW21011	WASHER	
162	RXG0003	REEL TABLE GEAR	
163	RUQ112ZA	SPRING	
164	RUQ111ZA	SPRING	
165	RHE5204ZB	SCREW	
166	RUW147ZA	SPRING	
167	RML0037	LEVER	
168	XQN2+AF3	SCREW	
169	RMQ0037	FG YOKE	
170	RUS609Z	TAPE PRESSURE SPRING	

EXPLODED VIEWS

• **Mechanical parts**
(Top view)



(Bottom view)

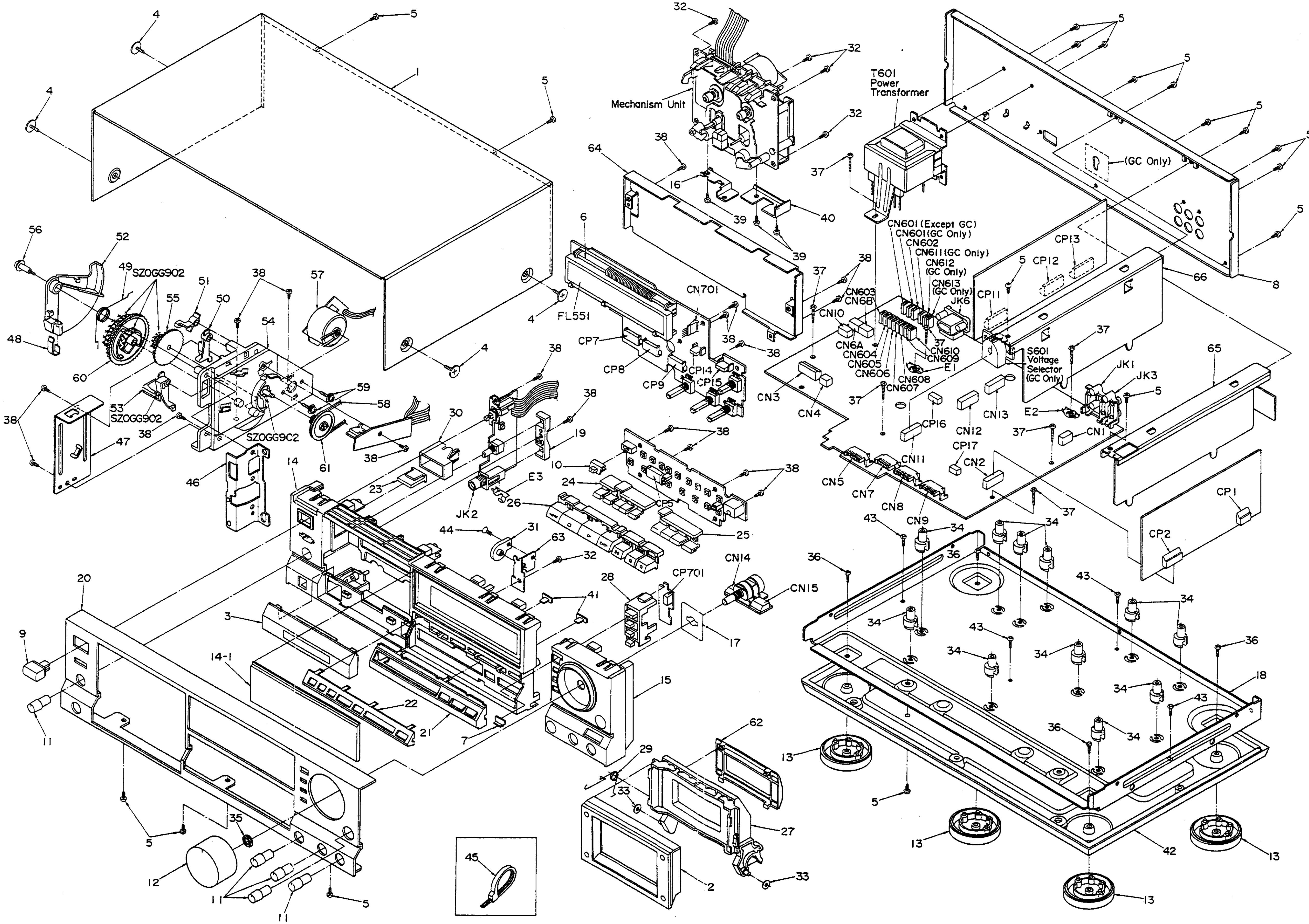


Note:
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZOL18
Ⓒ	FLOIL947P	RZZOL02

11 12 13 14 15 16 17 18 19

• **Cabinet parts**



■ REPLACEMENT PARTS LIST

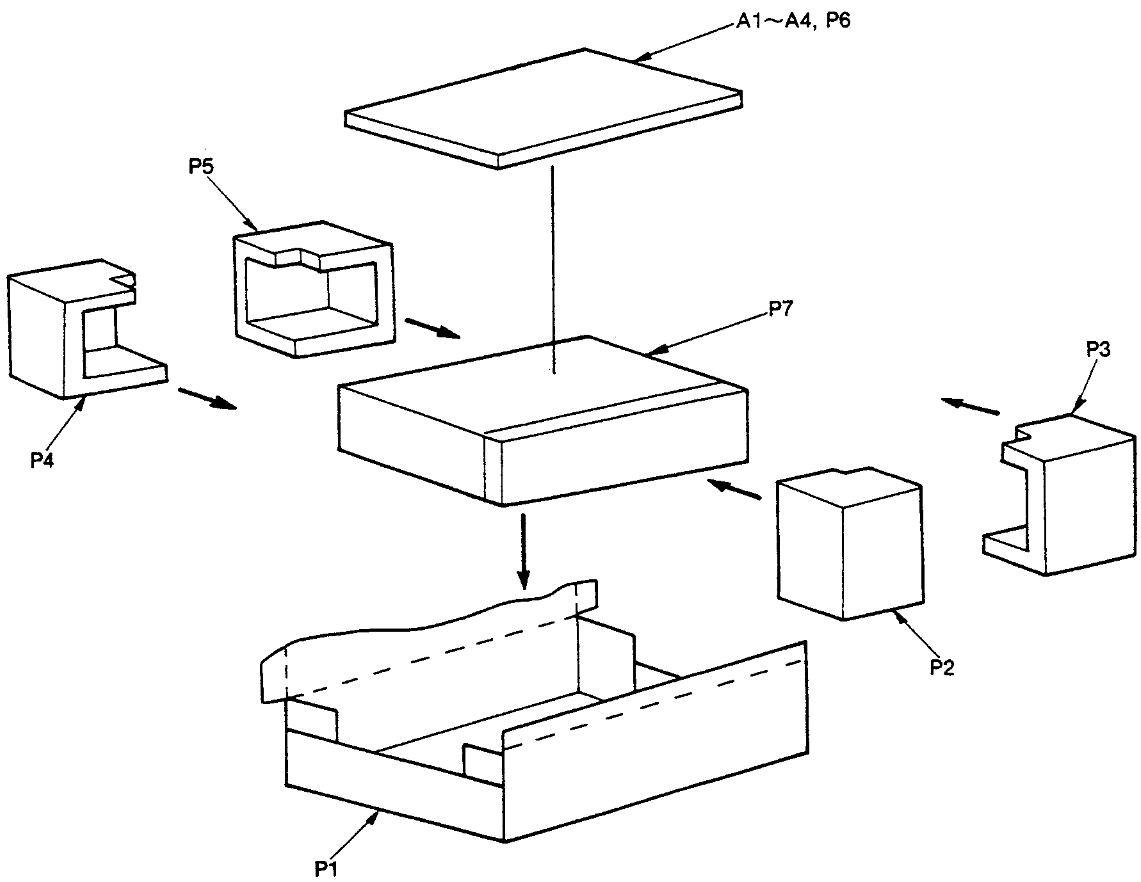
Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RFKKSB965E-K	CABINET ASS'Y	
2	RYF0076	CASSETTE LID	
3	RYQ0027	ORNAMENT	
4	SNE2129-1	SCREW	
5	XTBS3+8JFZ1	SCREW	
6	RMN0021	FL HOLDER	
7	RGK0219	BUTTON ORNAMENT	
8	RGR0024A-B	REAR PANEL	(E)
8	RGR0024A-D	REAR PANEL	(EB, GN)
8	RGR0024A-F	REAR PANEL	(EG)
8	RGR0024A-E1	REAR PANEL	(PP)
8	RGR0024B-A1	REAR PANEL	(GC)
9	RGU0030	BUTTON, POWER	
10	RGV0022	KNOB, TIMER	
11	RGW0032	KNOB, BALANCE LEVEL	
12	RGW0033	KNOB, REC LEVEL	
13	RKA0009-1	FOOT	
14	RFKNSB965EAK	FRONT GRILLE ASS'Y (1)	
14-1	RKW0038	TRANSPARENT PLATE	
15	RFKNSB965EBK	FRONT GRILLE ASS'Y (2)	
16	RMC0040	BRACKET	
17	RMC0056	SHIELD PLATE	
18	RMK0026-2	CHASSIS	
19	RMN0022	ORNAMENT	
20	RFKGSB965E-K	FRONT PANEL ASS'Y	(E, EB, EG, GC, GN)
20	RFKGSB965P-K	FRONT PANEL ASS'Y	(PP)
21	RGK0117	ORNAMENT, BUTTON (A)	
22	RGK0118A	ORNAMENT, BUTTON (B)	
23	RGU0195	BUTTON, OPEN/CLOSE	
24	RGU0131	BUTTON, COUNTER	
25	RGU0132	BUTTON, NOISE REDUCTION	
26	RGU0133A	BUTTON, OPERATION	
27	RFKNSB755ECK	CASSETTE HOLDER ASS'Y	
28	RGU0302	BUTTON, CD DIRECT	
29	RME0049	SPRING	
30	RMR0185	LEVER, OPEN/CLOSE	
31	RFKNSB755CK	DAMPER GEAR ASS'Y	
32	XTB3+10JFZ	SCREW	
33	SUD444-1	WASHER	
34	SHE187-2	HOLDER	
35	SNE4021-1	NUT	
36	XTB3+16G	SCREW	
37	XTB3+20J	SCREW	
38	XTB3+8JFZ	SCREW	
39	XTB26+4FFZ	SCREW	
40	RSC0076	SHIELD PLATE	
41	RGL0030	PANEL LIGHT	
42	RKU0009-1	BOTTOM BOARD	
43	XTB3+10GFZ	SCREW	
44	XTS3+8J	SCREW	
45	SHR301	CLAMPER	
46	RMA0146	LOADING ANGLE	
47	RMA0242	ANGLE	
48	RMC0039	BRACKET	
49	RME0039	OPEN SPRING	
50	RML0110	LEAF SWITCH LEVER (B)	
51	RML0111	LEAF SWITCH LEVER (C)	
52	RML0112	DRIVE SECTOR LEVER	
53	RML0113	LEAF SWITCH LEVER (A)	
54	RFKNSB755EDK	LOADING BASE ASS'Y	
55	SFUGF01N02	INTERMEDIATE GEAR	
56	SHDD8	SCREW	
57	RFKPSB755E-K	EJECT DRIVE MOTOR ASS'Y	
58	SMBD7	BELT	
59	XYN26+F6	SCREW	
60	RDG0080	DRIVE GEAR	
61	RDG0081	PULLEY GEAR	
62	RMQ0072	HALF STABILIZER	
63	RMA0157-1	DAMPER ANGLE	
64	RMA0265	PANEL ANGLE	
65	RMA0266	ANGLE (A)	
66	RMA0267	ANGLE (B)	
		PACKING MATERIAL	
P1	RPG0414	CARTON BOX	(E, EB, EG, GC, GN)
P1	RPG0586	CARTON BOX	(PP)
P2	RPN0366A	PAD (A)	
P3	RPN0366B	PAD (B)	
P4	RPN0366C	PAD (C)	
P5	RPN0366D	PAD (D)	
P6	SPSD152	PAD, ACCESSORIES	
P7	SPP756	PROTECTION COVER	
		ACCESSORIES	
A1	RFKSSB965E	INSTRUCTION MANUAL ASS'Y	(E)
A1	RQT0382-G	INSTRUCTION MANUAL	(EB, GC, GN
A1	RQT0384-D	INSTRUCTION MANUAL	(EG)
A1	RQT0385-P	INSTRUCTION MANUAL	(PP)
A2	RJA0004	POWER CORD	(GC) ⚠

Ref. No.	Part No.	Part Name & Description	Remarks
A2	SFDAC05E03	POWER CORD	(E, EG) ⚠
A2	SJA172	POWER CORD	(PP) ⚠
A2	SJA173-1	POWER CORD	(GN) ⚠
A2	SJA193-1	POWER CORD	(EB) ⚠
A3	SJP2249-3	STEREO CONNECTION CABLE	
A4	SJP9215	AC PLUG ADAPTOR	(GC) ⚠

Ref. No.	Part No.	Part Name & Description	Remarks

PACKING



RESISTORS & CAPACITORS

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1, 2	ERDS2TJ683T	1/4W 68K
R3-8	ERDS2TJ472T	1/4W 4.7K
R9, 10	ERDS2TJ470T	1/4W 47
R11-14	ERDS2TJ225T	1/4W 2.2M
R15, 16	ERDS2TJ123T	1/4W 12K (PP)
R15, 16	ERDS2TJ153T	1/4W 15K (E, EB, EG,
		GC, GN)
R17, 18	ERDS2TJ564T	1/4W 560K
R19, 20	ERDS2TJ103T	1/4W 10K
R21-26	ERDS2TJ223T	1/4W 22K
R27, 28	ERDS2TJ331T	1/4W 330
R29, 30	ERDS2TJ182T	1/4W 1.8K
R31, 32	ERDS2TJ332T	1/4W 3.3K
R33, 34	ERDS2TJ333T	1/4W 33K
R35, 36	ERDS2TJ101T	1/4W 100
R37, 38	ERDS2TJ102T	1/4W 1K
R39, 40	ERDS2TJ223T	1/4W 22K
R41-44	ERDS2TJ103T	1/4W 10K
R45, 46	ERDS2TJ101T	1/4W 100
R47, 48	ERDS2TJ104T	1/4W 100K
R49, 50	ERDS2TJ273T	1/4W 27K
R51-54	ERDS2TJ223T	1/4W 22K
R55, 56	ERDS2TJ562T	1/4W 5.6K
R57, 58	ERDS2TJ333T	1/4W 33K
R59, 60	ERDS2TJ363T	1/4W 36K
R61, 62	ERDS2TJ103T	1/4W 10K
R63, 64	ERDS2TJ223T	1/4W 22K
R65, 66	ERDS2TJ153T	1/4W 15K
R67, 68	ERDS2TJ473T	1/4W 47K
R69	ERDS2TJ562T	1/4W 5.6K
R70	ERDS2TJ333T	1/4W 33K
R71	ERDS2TJ682T	1/4W 6.8K
R72	ERDS2TJ223T	1/4W 22K
R73, 74	ERDS2TJ821T	1/4W 820
R75, 76	ERDS2TJ103T	1/4W 10K
R77, 78	ERDS2TJ391T	1/4W 390
R79	ERDS2TJ562T	1/4W 5.6K
R80	ERDS2TJ332T	1/4W 3.3K
R81	ERDS2TJ272T	1/4W 2.7K
R82	ERDS2TJ202	1/4W 2K
R85, 86	ERDS2TJ223T	1/4W 22K (PP)
R85, 86	ERDS2TJ683T	1/4W 68K (E, EB, EG,
		GC, GN)
R87, 88	ERDS2TJ222T	1/4W 2.2K
R89, 90	ERDS2TJ334T	1/4W 330K
R91, 92	ERDS2TJ273T	1/4W 27K

Ref. No.	Part No.	Values & Remarks
R93, 94	ERDS2TJ682T	1/4W 6.8K
R95, 96	ERDS2TJ153T	1/4W 15K (E, EB, EG,
		GC, GN)
R95, 96	ERDS2TJ223T	1/4W 22K (PP)
R97, 98	ERDS2TJ102T	1/4W 1K
R99	ERDS2TJ223T	1/4W 22K
R100	ERDS2TJ223T	1/4W 22K
R101, 102	ERDS2TJ470T	1/4W 47 (E, EB, EG,
		GC, GN)
R101, 102	ERDS2TJ820T	1/4W 82 (PP)
R103, 104	ERDS2TJ102T	1/4W 1K (PP)
R103, 104	ERDS2TJ471T	1/4W 470 (E, EB, EG,
		GC, GN)
R105, 106	ERDS2TJ102T	1/4W 1K
R107, 108	ERDS2TJ122T	1/4W 1.2K (E, EB, EG,
		GC, GN)
R107, 108	ERDS2TJ222T	1/4W 2.2K (PP)
R109, 110	ERDS2TJ103T	1/4W 10K (PP)
R109, 110	ERDS2TJ332T	1/4W 3.3K (E, EB, EG,
		GC, GN)
R111, 112	ERDS2TJ562T	1/4W 5.6K
R113, 114	ERDS2TJ103T	1/4W 10K (E, EB, EG,
		GC, GN)
R113, 114	ERDS2TJ822T	1/4W 8.2K (PP)
R115, 116	ERDS2TJ222T	1/4W 2.2K (E, EB, EG,
		GC, GN)
R115, 116	ERDS2TJ272T	1/4W 2.7K (PP)
R117, 118	ERDS2TJ472T	1/4W 4.7K
R119-122	ERDS2TJ101T	1/4W 100
R123, 124	ERDS2TJ472T	1/4W 4.7K
R125-128	ERDS2TJ101T	1/4W 100
R129-132	ERDS2TJ152T	1/4W 1.5K
R133-136	ERDS2TJ102T	1/4W 1K
R137	ERDS2TJ392T	1/4W 3.9K
R138	ERDS2TJ182T	1/4W 1.8K
R139, 140	ERDS2TJ104T	1/4W 100K
R141, 142	ERDS2TJ102T	1/4W 1K
R143, 144	ERDS2TJ273T	1/4W 27K
R145, 146	ERDS2TJ392T	1/4W 3.9K
R151, 152	ERDS2TJ223T	1/4W 22K
R155, 156	ERDS2TJ104T	1/4W 100K
R157, 158	ERDS2TJ562T	1/4W 5.6K
R159-162	ERDS2TJ101T	1/4W 100
R165, 166	ERDS2TJ104T	1/4W 100K
R201, 202	ERDS2TJ183T	1/4W 18K
R201A	ERJ6GEYJ273V	1/10W 27K
R202A	ERJ6GEYJ683V	1/10W 68K
R203A	ERJ6GEYJ1R5V	1/10W 1.5
R204	ERDS2TJ821T	1/4W 820

Ref. No.	Part No.	Values & Remarks
R204A	ERJ6GEYJ1R5V	1/10W 1.5
R205	ERDS2TJ101T	1/4W 100
R205A	ERJ6GEYJ1R5V	1/10W 1.5
R206	ERDS2TJ393T	1/4W 39K
R206A	ERJ8GEYJ222V	1/8W 2.2K
R207	ERDS2TJ332T	1/4W 3.3K (PP)
R207	ERDS2TJ472T	1/4W 4.7K (E, EB, EG,
		GC, GN)
R207A	ERJ6GEYJ182V	1/10W 1.8K
R208	ERDS2TJ104T	1/4W 100K
R208A	ERJ6GEYJ222V	1/10W 2.2K
R209	ERDS2TJ102T	1/4W 1K
R209A	ERJ6GEYJ4R7V	1/10W 4.7
R210	ERDS2TJ473T	1/4W 47K
R210A	ERJ6GEYJ4R7V	1/10W 4.7
R211	ERDS2TJ103T	1/4W 10K
R211A	ERJ6GEYJ4R7V	1/10W 4.7
R212	ERDS2TJ823T	1/4W 82K
R212A	ERJ6GEYJ152V	1/10W 1.5K
R213-215	ERDS2TJ473T	1/4W 47K
R213A	ERJ6GEYJ152V	1/10W 1.5K
R214A	ERJ6GEYJ822V	1/10W 8.2K
R215A	ERJ6GEYJ101V	1/10W 100
R216-218	ERDS2TJ223T	1/4W 22K
R216A	ERJ8GEYJ222V	1/8W 2.2K
R301	ERDS2TJ1R0T	1/4W .0
R302, 303	ERDS2TJ183T	1/4W 8K
R304, 305	ERDS2TJ100T	1/4W 10
R306	ERDS2TJ563T	1/4W 6K (PP)
R307	ERDS2TJ472T	1/4W 4.7K
R308	ERDS2TJ332T	1/4W 3.3K
R309	ERDS2TJ272T	1/4W 2.7K
R310	ERDS2TJ182	1/4W 1.8 (PP)
R310	ERDS2TJ222T	1/4W 2.2K (E, EB, EG,
		GC, GN)
R313, 314	ERDS2TJ124T	1/4W 1 0K (PP)
R313, 314	ERDS2TJ154T	1/4W 1 0K (E, EB, EG,
		GC, GN)
R315, 316	ERDS2TJ273T	1/4W 7K (E, EB, EG,
		GC, GN)
R315, 316	ERDS2TJ333T	1/4W 3K (PP)
R318	ERDS2TJ152T	1/4W 1.5K
R319	ERDS2TJ102T	1/4W 1K
R320	ERDS2TJ332T	1/4W 3.3K
R321	ERDS2TJ473T	1/4W 7K
R322	ERDS2TJ102T	1/4W 1K
R323	ERDS1FVJ121T	1/2W 20 (E, EG,
		GC) ⚠
R323	ERDS1FJ390	1/2W 9 (EB, GN) ⚠

Ref. No.	Part No.	Values & Remarks
R323	ERDS1FJ470	1/2W 47 (PP)⚠
R324, 325	ERDS1FJ390	1/2W 39 (EB, GN)⚠
R390	ERDS2TJ182	1/4W 1.8K (PP)
R391	ERDS1FJ390	1/2W 39 (PP)⚠
R401-404	ERDS2TJ684T	1/4W 680K
R405, 406	ERDS2TJ182T	1/4W 1.8K
R407, 408	ERDS2TJ302T	1/4W 3K
R409, 410	ERDS2TJ431T	1/4W 430
R411, 412	ERDS2TJ362T	1/4W 3.6K
R413, 414	ERDS2TJ682T	1/4W 6.8K
R415, 416	ERDS2TJ681T	1/4W 680
R417	ERDS2TJ104T	1/4W 100K
R419, 420	ERDS2TJ183T	1/4W 18K (E, EB, EG,
		GC, GN)
R419, 420	ERDS2TJ822T	1/4W 8.2K (PP)
R421, 422	ERDS2TJ272T	1/4W 2.7K
R423, 424	ERDS2TJ512T	1/4W 5.1K
R425	ERDS2TJ103T	1/4W 10K
R427	ERDS2TJ822T	1/4W 8.2K
R429, 430	ERDS2TJ822T	1/4W 8.2K
R431, 432	ERDS2TJ223T	1/4W 22K
R433, 434	ERDS2TJ471T	1/4W 470
R440	ERDS2TJ333T	1/4W 33K
R451, 452	ERDS2TJ162T	1/4W 1.6K
R453, 454	ERDS2TJ431T	1/4W 430
R457, 458	ERDS2TJ682T	1/4W 6.8K
R459, 460	ERDS2TJ681T	1/4W 680
R461	ERDS2TJ104T	1/4W 100K
R463, 464	ERDS2TJ183T	1/4W 18K
R465, 466	ERDS2TJ222T	1/4W 2.2K
R467, 468	ERDS2TJ103T	1/4W 10K
R497, 498	ERDS2TJ222T	1/4W 2.2K
R551, 552	ERDS2TJ104T	1/4W 100K
R553, 554	ERDS2TJ204T	1/4W 200K
R555, 556	ERDS2TJ823T	1/4W 82K
R557, 558	ERDS2TJ220T	1/4W 22
R559, 560	ERDS2TJ272T	1/4W 2.7K
R561	ERDS2TJ102T	1/4W 1K
R562	ERDS2TJ471T	1/4W 470
R563, 564	ERDS2TJ103T	1/4W 10K
R565	ERDS2TJ105T	1/4W 1M
R569, 570	ERDS2TJ101T	1/4W 100
R571	ERDS2TJ152T	1/4W 1.5K
R572	ERDS2TJ102T	1/4W 1K
R573	ERDS2TJ270T	1/4W 27
R574	ERDS2TJ220T	1/4W 22
R575-578	ERDS2TJ331T	1/4W 330
R581, 582	ERDS2TJ822T	1/4W 8.2K
R583, 584	ERDS2TJ103T	1/4W 10K
R585	ERDS2TJ223T	1/4W 22K
R601, 602	ERDS2TJ472T	1/4W 4.7K
R603	ERDS2TJ103T	1/4W 10K

Ref. No.	Part No.	Values & Remarks
R604	ERDS2TJ472T	1/4W 4.7K
R605, 606	ERDS1FVJ100T	1/2W 10 (PP, E,
		EG, GC)⚠
R605, 606	ERD2FCVG100T	1/4W 10 (EB, GN)
R607, 608	ERDS2TJ561T	1/4W 560
R609, 610	ERDS2TJ152T	1/4W 1.5K
R611	ERDS2TJ472T	1/4W 4.7K
R612	ERDS2TJ103T	1/4W 10K
R613	ERDS2TJ222T	1/4W 2.2K
R614	ERDS1FVJ270T	1/2W 27 (PP, E,
		EG, GC)⚠
R614	ERD2FCVG270T	1/4W 27 (EB, GN)⚠
R615	ERDS1FVJ220T	1/2W 22 (PP, E,
		EG, GC)⚠
R615	ERD2FCVG270T	1/4W 27 (EB, GN)⚠
R616	ERDS2TJ222T	1/4W 2.2K
R617	ERDS2TJ1R0T	1/4W 1.0
R619	ERDS2TJ391T	1/4W 390
R622	ERDS1FVJ3R3T	1/2W 3.3 ⚠
R623	ERDS2TJ102T	1/4W 1K
R625	ERDS1FVJ120T	1/2W 12 ⚠
R626	ERDS2TJ102T	1/4W 1K
R627, 628	ERDS2TJ222T	1/4W 2.2K
R631, 632	ERDS2TJ222T	1/4W 2.2K
R633	ERDS2TJ121T	1/4W 120 (PP, E,
		EG, GC)
R633	ERD2FCVG270T	1/4W 27 (EB, GN)
R634-637	ERDS2TJ222T	1/4W 2.2K
R638, 639	ERDS2TJ121T	1/4W 120 (PP, E,
		EG, GC)
R638, 639	ERD2FCVG270T	1/4W 27 (EB, GN)
R640-643	ERDS2TJ222T	1/4W 2.2K
R644	ERDS2TJ121T	1/4W 120 (PP, E,
		EG, GC)
R644	ERD2FCVG270T	1/4W 27 (EB, GN)
R645-647	ERQ16NKR15E	1/6W 0.15 (EB, GN)
R650, 651	ERDS2TJ472T	1/4W 4.7K (EB, GN)
R652, 653	ERDS2TJ222T	1/4W 2.2K (EB, GN)
R654, 655	ERDS2TJ332T	1/4W 3.3K (EB, GN)
R657	ERDS2TJ332T	1/4W 3.3K
R658	ERDS2TJ473T	1/4W 47K
R659	ERDS1FVJ330T	1/2W 33 (PP, E,
		EG, GC)⚠
R659	ERD2FCVG330T	1/4W 33 (EB, GN)⚠
R660	ERD2FCVG100T	1/4W 10 ⚠
R661	ERDS2TJ472T	1/4W 4.7K
R662, 663	ERDS1FVJ100T	1/2W 10 (PP, E,
		EG, GC)
R662, 663	ERD2FCVG100T	1/4W 10 (EB, GN)
R664-667	ERDS2TJ101T	1/4W 100 (EB, GN)
R668	ERDS2TJ563T	1/4W 56K (EB, GN)
R669	ERDS2TJ472T	1/4W 4.7K

Ref. No.	Part No.	Values & Remarks
R670	ERDS2TJ223T	1/4W 22K
R675	ERDS2TJ102T	1/4W 1K
R676	ERDS2TJ103T	1/4W 10K
R680, 681	ERDS2TJ223T	1/4W 22K
R682	ERDS2TJ473T	1/4W 47K
R685	ERDS1FVJ220T	1/2W 22 (PP, E,
		EG, GC)⚠
R690, 691	ERDS2TJ473T	1/4W 47K
R695	ERDS2TJ103T	1/4W 10K
R699	ERDS2TJ123T	1/4W 12K
R701	ERDS2TJ821T	1/4W 820
R702	ERDS2TJ102T	1/4W 1K
R703	ERDS2TJ122T	1/4W 1.2K
R704	ERDS2TJ152T	1/4W 1.5K
R705	ERDS2TJ182T	1/4W 1.8K
R706	ERDS2TJ222T	1/4W 2.2K
R707	ERDS2TJ332T	1/4W 3.3K
R708	ERDS2TJ472T	1/4W 4.7K
R709	ERDS2TJ682T	1/4W 6.8K
R710	ERDS2TJ123T	1/4W 12K
R711	ERDS2TJ223T	1/4W 22K
R712	ERDS2TJ821T	1/4W 820
R713	ERDS2TJ102T	1/4W 1K
R714	ERDS2TJ122T	1/4W 1.2K
R715	ERDS2TJ152T	1/4W 1.5K
R716	ERDS2TJ182T	1/4W 1.8K
R717	ERDS2TJ181T	1/4W 180
R718	ERDS2TJ331T	1/4W 330
R719, 720	ERDS2TJ180	1/4W 18
R721, 722	ERDS2TJ330T	1/4W 33
R723, 724	ERDS2TJ100T	1/4W 10
R725, 726	ERDS2TJ102T	1/4W 1K
R727, 728	ERDS2TJ332T	1/4W 3.3K
R730	ERDS2TJ472T	1/4W 4.7K
R803, 804	ERDS2TJ223T	1/4W 22K
R805, 806	ERDS2TJ243	1/4W 24K
R807, 808	ERDS2TJ622	1/4W 6.2K
R809, 810	ERDS2TJ913T	1/4W 91K
R811, 812	ERDS2TJ472T	1/4W 4.7K
R813, 814	ERDS2TJ333T	1/4W 33K
R815, 816	ERDS2TJ682T	1/4W 6.8K
R817, 818	ERDS2TJ333T	1/4W 33K
R819, 820	ERDS2TJ183T	1/4W 18K
R821, 822	ERDS2TJ182T	1/4W 1.8K
R823, 824	ERDS2TJ123T	1/4W 12K
R825, 826	ERDS2TJ112	1/4W 1.1K
R827, 828	ERDS2TJ225T	1/4W 2.2M
R829, 830	ERDS2TJ332T	1/4W 3.3K (PP)
R829, 830	ERDS2TJ392T	1/4W 3.9K (E, EB, EG,
		GC, GN)
R831	ERDS2TJ102T	1/4W 1K
R853, 854	ERDS2TJ362T	1/4W 3.6K

Ref. No.	Part No.	Values & Remarks
R855, 856	ERDS2TJ243	1/4W 24K
R857, 858	ERDS2TJ622	1/4W 6.2K
R859, 860	ERDS2TJ913T	1/4W 91K
R861, 862	ERDS2TJ472T	1/4W 4.7K
R863, 864	ERDS2TJ333T	1/4W 33K
R865, 866	ERDS2TJ682T	1/4W 6.8K
R867, 868	ERDS2TJ333T	1/4W 33K
R869, 870	ERDS2TJ183T	1/4W 18K
R871, 872	ERDS2TJ182T	1/4W 1.8K
R873, 874	ERDS2TJ123T	1/4W 12K
R875, 876	ERDS2TJ112	1/4W 1.1K
R877, 878	ERDS2TJ225T	1/4W 2.2M
R879, 880	ERDS2TJ431T	1/4W 430
R881	ERDS2TJ102T	1/4W 1K
R901	ERDS2TJ472T	1/4W 4.7K
R902-904	ERDS2TJ103T	1/4W 10K
R905	ERDS2TJ821T	1/4W 820
R906	ERDS2TJ223T	1/4W 22K
R907, 908	ERDS2TJ103T	1/4W 10K
R909	ERDS2TJ472T	1/4W 4.7K
R911, 912	ERDS2TJ225T	1/4W 2.2M
R913, 914	ERDS2TJ472T	1/4W 4.7K
R915, 916	ERDS2TJ103T	1/4W 10K
R917, 918	ERDS2TJ563T	1/4W 56K
R919, 920	ERDS2TJ105T	1/4W 1M
R922	ERDS2TJ821T	1/4W 820
R924	ERDS2TJ123T	1/4W 12K
R935	ERDS2TJ103T	1/4W 10K
R937	ERDS2TJ683T	1/4W 68K
R938, 939	ERDS2TJ472T	1/4W 4.7K
R940	ERDS2TJ103T	1/4W 10K (PP, E,
		EG, GC)
R941	ERDS2TJ821T	1/4W 820
R942	ERDS2TJ223T	1/4W 22K
R943	ERG1SJ180E	1W 18
R944	ERG1SJ150E	1W 15
R945	ERDS2TJ223T	1/4W 22K
R946	ERDS2TJ821T	1/4W 820
R947	ERDS2TJ223T	1/4W 22K
R948	ERDS2TJ821T	1/4W 820
R949	ERDS2TJ103T	1/4W 10K
R950	ERDS2TJ182T	1/4W 1.8K
R951	ERDS2TJ682T	1/4W 6.8K
R952	ERDS2TJ104T	1/4W 100K
R953	ERDS2TJ393T	1/4W 39K
R954	ERDS2TJ103T	1/4W 10K
R955	ERDS2TJ392T	1/4W 3.9K
R956	ERDS2TJ272T	1/4W 2.7K
R957	ERDS2TJ333T	1/4W 33K
R958, 959	ERDS2TJ103T	1/4W 10K
R960	ERDS2TJ152T	1/4W 1.5K
R961, 962	ERDS2TJ391T	1/4W 390 (PP)

Ref. No.	Part No.	Values & Remarks
R961, 962	ERDS2TJ561T	1/4W 560 (E, EB, EG,
		GC, GN)
R963	ERDS2TJ223T	1/4W 22K
R964	ERDS2TJ105T	1/4W 1M
R965	ERDS2TJ471T	1/4W 470
R966, 967	ERDS2TJ103T	1/4W 10K
R970	ERDS2TJ222T	1/4W 2.2K
R971	ERDS2TJ332T	1/4W 3.3K
R971A	ERDS2TJ271T	1/4W 270
R972	ERDS2TJ472T	1/4W 4.7K
R972A	ERDS2TJ183T	1/4W 18K
R973	ERDS2TJ682T	1/4W 6.8K
R973A	ERDS2TJ271T	1/4W 270
R974	ERDS2TJ123T	1/4W 12K
R974A	ERDS2TJ183T	1/4W 18K
R975	ERDS2TJ223T	1/4W 22K
R977	ERDS2TJ473T	1/4W 47K
R979, 980	ERDS2TJ123T	1/4W 12K
R981-983	ERDS2TJ472T	1/4W 4.7K
R984	ERDS2TJ223T	1/4W 22K
R985	ERDS2TJ103T	1/4W 10K
R986	ERDS2TJ332T	1/4W 3.3K
R987	ERDS2TJ103T	1/4W 10K
R988	ERDS2TJ223T	1/4W 22K
R989	ERDS2TJ103T	1/4W 10K
R991	ERDS2TJ222T	1/4W 2.2K
R994, 995	ERDS2TJ103T	1/4W 10K
R996	ERDS2TJ223T	1/4W 22K
R997	ERDS2TJ222T	1/4W 2.2K
R998	ERDS2TJ103T	1/4W 10K
R999	ERDS2TJ272T	1/4W 2.7K
J201-206	ERJ6GEY0R00V	CHIP JUMPER
		CAPACITORS
C1, 2	ECBT1H151KB5	50V 150P (E, EB, EG,
		GC, GN)
C3, 4	ECQB1H183JZ3	50V 0.018U
C5, 6	ECQB1H562JZ3	50V 5600P
C7, 8	ECA0JPXS471B	6.3V 470U
C9, 10	ECQB1H152JZ3	50V 1500P
C11, 12	ECBT1H470J5	50V 47P
C13, 14	ECQB1H103JZ3	50V 0.01U (E, EB, EG,
		GC, GN)
C13, 14	ECQB1H273JZ3	50V 0.027U (PP)
C15, 16	ECQB1H123JZ	50V 0.012U
C17, 18	ECA1EPXS100	25V 10U
C19, 20	ECA1EPXS220B	25V 22U
C23-26	ECA1EPXS100	25V 10U

Ref. No.	Part No.	Values & Remarks
C27, 28	ECBT1H390J5	50V 39P
C29, 30	ECA1EPXS100	25V 10U
C31, 32	ECQB1H122JZ3	50V 1200P
C33, 34	ECQB1H103JZ3	50V 0.01U
C35	ECQB1H332JZ3	50V 3300P
C36	ECQB1H273JZ3	50V 0.027U
C37, 38	ECA1EPXS100	25V 10U
C39-42	ECA1HPXS100	50V 10U
C43, 44	ECBT1H101KB5	50V 100P
C45, 46	ECKT1H221KB	50V 220P
C47, 48	ECA1HPXSR33B	50V 0.33U
C49, 50	ECQB1H272JZ3	50V 2700P (PP)
C49, 50	ECQB1H682JZ3	50V 6800P (E, EB, EG,
		GC, GN)
C51, 52	ECQB1H183JZ3	50V 0.018U
C53, 54	ECQB1H223JZ3	50V 0.022U (PP)
C53, 54	ECQB1H472JZ3	50V 4700P (E, EB, EG,
		GC, GN)
C55, 56	ECQB1H392JZ3	50V 3900P (PP)
C55, 56	ECQB1H822JZ3	50V 8200P (E, EB, EG,
		GC, GN)
C57, 58	ECQB1H223JZ3	50V 0.022U (PP)
C57, 58	ECQB1H273JZ3	50V 0.027U (E, EB, EG
		GC, GN)
C59, 60	ECQB1H183JZ3	50V 0.018U
C61, 62	ECQV1H473JZ3	50V 0.047U (PP)
C61, 62	ECQV1H683JZ3	50V 0.68U (E, EB, EG,
		GC, GN)
C63, 64	ECQB1H183JZ3	50V 0.018U (PP)
C63, 64	ECQB1H333JZ3	50V 0.033U (E, EB, EG,
		GC, GN)
C65, 66	ECA1EPXS220B	25V 22U
C67, 68	ECQP1101JZ3	50V 100P (PP)
C67, 68	ECQP1121JZ	50V 120P (E, EB, EG,
		GC, GN)
C69, 70	ECQB1H122JZ3	50V 1200P
C75, 76	ECA1HPXS100	50V 10U
C79, 80	ECBT1H470J5	50V 47P
C201	ECUV1E153MB	25V 0.015U
C202	ECUV1E104KB	25V 0.1U
C203, 204	ECEV1CA100R	16V 10U
C205, C206	ECUV1E104KB	25V 0.1U
C209-211	ECEV1EN100R	25V 10U
C212-214	ECUV1H103ZFN	50V 0.01U
C215	ECUV1H472KB	50V 4700P
C216	ECUV1H562KBN	25V 5600P
C217-219	ECUV1E104KB	25V 0.1U
C301	ECQP1153JZ	50V 0.015U (E, EB, EG,
		GC, GN)
C301	ECQP1822JZ3	50V 8200P (PP)
C302	ECEA1EK4R7B	25V 4.7U
C303	ECKR1H392KB5	50V 3900P

Ref. No.	Part No.	Values & Remarks
C304, 305	ECKR1H222KB5	50V 2200P
C306	ECKT1H682KB	50V 6800P
C310	ECKR1H103ZF5	50V 0.01U
C315, 316	ECBT1H470J5	50V 47P (PP)
C315, 316	ECBT1H561KB5	50V 560P (E, EB, EG
		GC, GN)
C317, 318	ECBT1H121KB5	50V 120P
C319, 320	ECQB1H183JZ	50V 0.018U (PP)
C319, 320	ECQB1H333JZ	50V 0.033U (E, EB, EG,
		GC, GN)
C321, 322	ECQB1H223JZ3	50V 0.022U
C323, 324	ECQB1H103JZ3	50V 0.01U
C325, 326	ECBT1H471KB5	50V 470P (PP)
C325, 326	ECBT1H681KB5	50V 680P (E, EB, EG,
		GC, GN)
C328	ECBT1H102KB5	50V 1000P (E, EB, EG,
		GC, GN)
C328	ECBT1H680J5	50V 68P (PP)
C329	ECA1HPXS100	50V 10U
C330	ECKR1H103ZF5	50V 0.01U
C401, 402	ECKT1H122KB	50V 1200P
C403, 404	ECKD1H152KB	50V 1500P
C405, 406	ECKR1H681KB5	50V 680P
C407, 408	ECQB1H472JZ3	50V 4700P
C409, 410	ECQV1H474JZ3	50V 0.47U
C411, 412	ECQV1H154JZ	50V 0.15U
C413, 414	ECQB1H153JZ3	50V 0.015U
C415, 416	ECQV1H224JZ3	50V 0.22U
C417, 418	ECQV1H683JZ3	50V 0.68U
C419, 420	ECQV1H473JZ3	50V 0.047U
C421, 422	ECQB1H682JZ3	50V 6800P
C423, 424	ECQB1H103JZ3	50V 0.01U
C425, 426	ECA1HPXS4R7B	50V 4.7U
C451, 452	ECKR1H681KB5	50V 680P
C453, 454	ECQB1H472JZ3	50V 4700P
C455, 456	ECQV1H474JZ3	50V 0.47U
C457, 458	ECQV1H154JZ	50V 0.15U
C459, 460	ECQB1H153JZ3	50V 0.015U
C461, 462	ECQV1H224JZ3	50V 0.22U
C463, 464	ECQV1H683JZ3	50V 0.68U
C465, 466	ECQV1H473JZ3	50V 0.047U
C467, 468	ECQB1H682JZ3	50V 6800P
C469, 470	ECQB1H103JZ3	50V 0.01U
C471, 472	ECA1HPXS4R7B	50V 4.7U
C551, 552	ECQV1H333JZ3	50V 0.033U
C553, 554	ECEA0JKS101B	6.3V 100U
C555	ECBT1E103ZF5	25V 0.01U
C556	ECEA1CK100B	16V 10U
C557	ECEA1EK4R7B	25V 4.7U
C558	ECEA1HK010B	50V 1U
C559-561	ECBT1E103ZF5	25V 0.01U
C563, 564	ECEA0JKS101B	6.3V 100U

Ref. No.	Part No.	Values & Remarks
C567, 568	ECEA1VK100B	35V 10U
C601, 602	ECKD2H682PE	500V 6800P
C603, 604	ECA1EPXS102E	25V 1000U
C605	ECEA1EU222E	25V 2200U
C606-608	ECKR1H103ZF5	50V 0.01U
C609, 610	ECBT1E103ZF5	25V 0.01U
C611, 612	ECKR1H103ZF5	50V 0.01U
C613, 614	ECBT1E103ZF5	25V 0.01U
C615-618	ECKR1H103ZF5	50V 0.01U
C619, 620	ECBT1E103ZF5	25V 0.01U
C621, 622	ECA1CPXS221	16V 220U
C625	ECKR1H103ZF5	50V 0.01U
C626	ECEA0JU222B	6.3V 2200U
C627-638	ECA1APXS101	10V 100U
C641, 642	ECA1EPXS102E	25V 1000U
C643	ECEA1HU221B	50V 220U
C644	ECEA1HK010B	50V 1U (EB, GN)
C646, 647	ECBT1E103ZF5	25V 0.01U
C648	ECEA1EK100B	25V 10U
C649	ECKR1H103ZF5	50V 0.01U
C690	ECEA1HK2R2B	50V 2.2U
C691	ECKR1H103ZF5	50V 0.01U
C701	ECBT1E223ZF5	25V 0.022U
C702, 703	ECEA1HK010B	50V 1U
C801, 802	ECA1EPXS220B	25V 22U
C803, 804	ECQB1H153JZ3	50V 0.015U
C805, 806	ECKR1H331KB5	50V 330P
C807, 808	ECEA1AN220SB	10V 22U
C809-812	ECQV1H104JZ3	50V 0.1U
C813-816	ECQB1H332JZ3	50V 3300P
C817, 818	ECKR1H331KB5	50V 330P
C819, 820	ECQV1H184JZ3	50V 0.18U
C821, 822	ECQB1H183JZ3	50V 0.018U
C823, 824	ECA1EPXS220B	25V 22U
C825, 826	ECBT1C182MR5	16V 1800P
C827, 828	ECA1HPXS3R3	50V 3.3U
C851, 852	ECA1EPXS220B	25V 22U
C853, 854	ECQB1H153JZ3	50V 0.015U
C855, 856	ECKR1H331KB5	50V 330P
C857, 858	ECEA1AN220SB	10V 22U
C859-862	ECQV1H104JZ3	50V 0.1U
C863-866	ECQB1H332JZ3	50V 3300P
C867, 868	ECKR1H331KB5	50V 330P
C869, 870	ECQV1H184JZ3	50V 0.18U
C871, 872	ECQB1H183JZ3	50V 0.018U
C873, 874	ECA1EPXS220B	25V 22U
C875, 876	ECBT1C182MR5	16V 1800P
C877, 878	ECA1HPXS3R3	50V 3.3U
C901	ECQB1H822JZ3	50V 8200P
C902	ECEA1CK100B	16V 10U
C903	ECBT1H470J5	50V 47P
C904	ECEA1HK010B	50V 1U

Ref. No.	Part No.	Values & Remarks
C905, 906	ECEA1CN100SB	16V 10U
C907	ECKR1H103ZF5	50V 0.01U
C908	ECEA1EK4R7B	25V 4.7U
C909	ECEA1HK010B	50V 1U
C910	ECEA1HU220B	50V 22U
C913, 914	ECQV1H184JZ3	50V 0.18U
C930	ECEA1HK4R7B	50V 4.7U
C931, 932	ECBT1E103ZF5	25V 0.01U
C933, 934	ECBT1C472MR5	16V 4700P
C935	ECBT1E103ZF5	25V 0.01U
C936	ECEA1HU100B	50V 10U

Printed in Japan
H900208600 HH/TN

5222 ORDER NO. AD9212414S0
A2

Service Manual

Cassette Deck

RS-B965

Supplement

Dolby NR-Equipped
Stereo Cassette Deck

Colour

(K)...Black Type

DOLBY B·C NR HX PRO *

* HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.
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Area

Suffix for Model No.	Area	Colour
(PP)	U.S.A./Canada.	(K)
(E)	Continental Europe.	
(EB)	Great Britain.	
(EG)	F.R. Germany/Italy.	
(GC)	Asia/Latin America, Middle Near East/ Africa.	
(GN)	Oceania.	
(EP)	Poland.	

Please file and use this supplement manual together with the service manual for Model No. RS-B965, Order No. AD9002037C8 (E, EB, EG, GC, GN), AD9004084C1 (PP) and AD9102038A2 (EP).

We inform you that we have changed the following zener diode in order to improve the takeup torque performance.

CHANGES

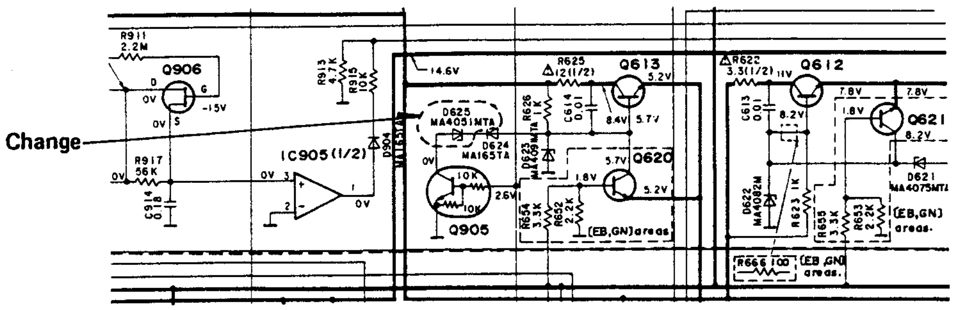
■ CHANGE IN REPLACEMENT PARTS LIST

Ref. No.	Change of Part No. ORIGINAL	→ NEW	Part Name & Description	Remarks
DIODE (S)				
D625	MA4051MTA	MTZJ4R3BTA	Zener Diode	Change

■ CHANGE OF SUFFIX NO.

"D" ——→ "E" EX: FP2J[D]01126 → Suffix [E]

■ SCHEMATIC DIAGRAM (on page 33)



Technics

Printed in Japan
K921 214300YU
2091 7T003

Gesamtfrequenzgang

1. Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-/Pause-Betrieb.
2. Geben Sie über einen Lautstärkeregler ein Bezugseingabesignal (1 kHz, −24 dB) ein.
3. Stellen Sie das Signal auf 20 dB und justieren die Frequenz von 50 Hz~10 kHz.
4. Nehmen Sie das Wobbelsignal auf.
5. Geben Sie das aufgenommene Signal wieder und achten darauf, daß dieses sich im Vergleich zur Bazugsfrequenz (1 kHz) in dem in **Abb. 8** aufgezeichneten Bereich befindet.
6. Sollte das Signal nicht im Normbereich liegen, justieren Sie **VR301** (L-K) und **VR302** (R-K), so daß der Frequenzpegel mit der Norm übereinstimmt.
7. Wiederholen Sie die Schritte 2~6 und verwender das CrO $_2$ Band (QZZCRX) und das Metallband (QZZCRZ). Der Frequenzbereich wird auf 12.5 kHz (50 Hz~12.5 kHz) angehoben.
8. Achten Sie darauf, daß sich der Frequenzpegel in dem in **Abb. 9** aufgezeigten Bereich befindet.

Löschstromeinstellung

1. Die leere Metallband-Prüfkassette (QZZCRZ) einsetzen und das Gerät auf Aufnahmepause schalten.
2. **VR304** so einstellen, daß der Ausgang zwischen **TP6** und GND dem Sollwert entspricht.

dbx Takteinstellung

1. Den Rauschunterdrückungs-Schalter auf dbx stellen.
2. Den Abschnitt für Verstärkungseinstellung (315 Hz, 0 dB) des Prüfbandes (QZZCFM) wiedergeben.
3. Einen Gleichstrom-Voltmeter zwischen **TP1 (TP4)** und **TP2 (TP3)** anschließen.
4. **VR501 (VR502)** so einstellen, daß der Ausgang dem Sollwert entspricht.

HX-PRO Einstellung

1. Die leere Metallband-Prüfkassette (QZZCRZ) einsetzen und das Gerät auf Aufnahmepause schalten.
2. Einen Gleichstrom-Voltmeter zwischen **TP15** (linker Kanal) und **GND** sowie zwischen **TP16** (rechter Kanal) und **GND** anschließen.
3. **L303** (linker Kanal) und **L302** (rechter Kanal) so einstellen, daß der Mini malwert ist.

REC-Kalibrierung

1. Nach dem Einstellen der Gesamtfrequenzcharakteristika und der Gesamtverstärkungsregelung das Testband QZZCRA in das Gerät einlegen, und die Aufnanmefunktion (REC/PLAY) einstellen.

— Pegeleinstellung —

2. Zuerst auf den REC CAL-Knopf drucken (Die Anzeige "LEVEL CAL" erscheint auf dem FL-Meter)
3. **VR9** so einstellen, daß der Pegel des rechten und linken kanals die ⵊ -Markierung erreichen, wie gezeigt.

— Bias-Einstellung —

4. Dann den REC CAL-Knopf nochmals drucken ("BIAS CAL" wird auf dem FL-Meter angezeigt.)
5. **VR10** so einstellen, daß der Pegel des rechten und linken kanals die ⵊ -Markierung erreichen, wie gezeigt.

Anmerkung:

Hinweis Beachten Sie, daß vor der Einstellung von Pegel und Bias die Gesamtfrequenz und die Gesamtverstarkungsregelung eingestellt werden müssen, so daß linker und rechter kanal gleich sind Andsrnfalls treten bei der Einstellung von Pegel und Bias Unterschiede zwischen linken und rechtem kanal auf.

Cassette Deck

RS-B965

DEUTSCH

MESSUNGEN UND EINSTELL METHODEN

Tonkopf-Azimuteinstellung

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für die Azimuteinstellung (8kHz, −20dB) ab. Drehen Sie die Azimuteinstellschraube so lange, bis die Abgaben des L-K und R-K den Höchstwert erreichen, und die Lissajosscghe wellenfigur sich, wie abgebildet, 0 Grad nähert.

Anmerkung:

When L-K und R-K nicht auf demselben Punkt ihren Höchstwert erreichen, stellen Sie beide Kanäle auf den jeweiligen Höchstwert und gleichen dann aus.

2. Nehmen Sie denselben Einstellvorgang in der Wiedergabestellung vor.

Prüfung des Pegelunterschiedes bei Vorwärts- und Rückwärtsdrehung

3. Den Abschnitt für Verstärkungseinstellung (315Hz, 0dB) des Prüfbandes (QZZCFM) wiedergeben und sicherstellen, daß der Pegelunterschied bei Vorwärts- und Rückwärtsdrehung kleiner als 1dB ist.
4. Nach der Einstellung Schrauben-Sicherungsmittel an die Azimuth-Einstellschraube geben.

Einstellung der Wiedergabeverstärkungsregelung

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für die Einstellung der Verstärkungsregelung (315Hz, 0dB) ab.
2. Stellen Sie **VR3** (L-K) [[**VR4** (R-K)]] so ein, daß die Abgabe den Normwert erfüllt.

Wiedergabefrequenzaang

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für den Frequenzgang (315Hz, 12,5kHz~63Hz, −20dB) ab.
2. Achten Sie darauf, daß der Frequenzgang für beide Kanäle (L-K, R-K) in dem in **Abb.5** gezeigten Bereich liegt.

Wechselstrom-Vormdgnetisierungseinstellung

1. Das unbespielte Metalltestband (QZZCRZ) einlegen, und das Gerät auf Aufnahme Schalten.
2. **L3** (L-CH) (**L4** (R-CH)) so einstellen, daß die Ausgangsspannung zwischen **TP7** (**TP8**) und **GND** geringer als der Minimalwert ist.

Einstellung der Gesamtverstärkungsregelung

1. Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-/Betrieb.
2. Legen Sie ein Bezugseingabesignal (1kHz, −24dB) an. Stellen Sie das Ausgangssignal auf einen Pegel von 0.4V ein.
3. Nehmen Sie das Eingabesignal auf.
4. Geben Sie das in Schritt 3 oben aufgenommene Signal wieder und achten Sie darauf, daß das Ausgangssignal mit dem Normwert übereinstimmt.
5. Sollte der Wert nicht innerhalb der Norm liegen, justieren Sie **VR5** (L-K) und **VR6** (R-K).
6. Wiederholen Sie die Schritte 2~5 von oben so lange, bis das Ausgangssignal im Normbereich liegt.